

Manufacturers Record

Reg. U. S. Patent Office



MARCH 1933

25 CENTS A COPY

OPPORTUNITY FOR SERVICE

Confronted with unusual problems when men are questioning not only the degree to which the depression may extend, but the very foundation of government itself, it seems to the Manufacturers Record that there is cause for distinct satisfaction in an important phase of the present situation. Frankly, we set store upon the determination and vigorous action of Franklin Delano Roosevelt, backed as he will be by an undivided Congress, to lead us out of a fog that has stopped the activities of a great nation and numbed the ability of the every-day man to think constructively.

The seriousness of the problems that affect America and the world generally are real and tremendous, but it is undeniable that cohesive, definite action for betterment is within the power of the new President who will preside over a country that in its natural resources and its wealth creating ability and in its capacity for contributing to the welfare of mankind stands unequalled in the world. The problems are real and engrossing, but they can be solved and we believe with the help of Providence they will be solved.

The spirit of this country is not revolutionary. It is now definitely at grips with things that are clearer in their shape and character than they were. They are of substance instead of shadow. They may mean the revamping of our banking structure and many of our holding companies, and of a considerable portion of corporate form of procedure to which we have been accustomed for a long time, but with patience and knowledge of what confronts us we can still have an American outlook, the healthiest in the world—an outlook that involves freedom of thought and action, of individual liberty and of service—that will lead to heights and extent of development heretofore unknown.

Let us enter upon this change of affairs with confidence and determination to cooperate and back up whatever constructive efforts the new Administration may put forth.

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Shovels,
Draglines,
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BULLETIN #161

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Canada, Ltd.
Ottawa, Ont.

Tyce Machinery Company
Ltd.
Vancouver, B. C.

332

**SHOVELS
CRANES
DRAGLINES
BACKDIGGERS**

LIMA

**3-4 YARD
1 YARD
1 1/4 YARD
1 1/2 YARD
CAPACITIES**

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(3 Ton Range)

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(4 Ton Range)

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MARCH NINETEEN THIRTY-THREE



The Stadium above, we built for the University of New Mexico at Albuquerque. It has a seating capacity of 4800, is 186 feet long, 42 rows deep. The steel deck has been welded throughout to make it watertight.

With the watertight deck serving as the roof and with the supporting steelwork having been readily spaced for the best arrangement of the underpart, the University has wisely planned to provide various rooms, showers, etc., at a very nominal cost.

Entrance to the Stadium is from the rear through conveniently spaced openings.

A Step Up

A STEEL Stadium properly designed and constructed is the most economical and lasting seating investment that a school or community can make. Steel is the strongest and most adaptable material known and its use in a stadium enables economies and facilities that cannot be had otherwise.

The Virginia Bridge Stadium is built of steel throughout except for raised wooden seats on steel brackets. The seat and foot arrangement is the most comfortable that has been devised.

The steel deck is readily made watertight and the underpart can then be enclosed and finished up into class rooms, locker rooms, showers, etc., at great saving in combined cost.

We shall be glad to furnish designs and estimates on any size and arrangement of stadium.

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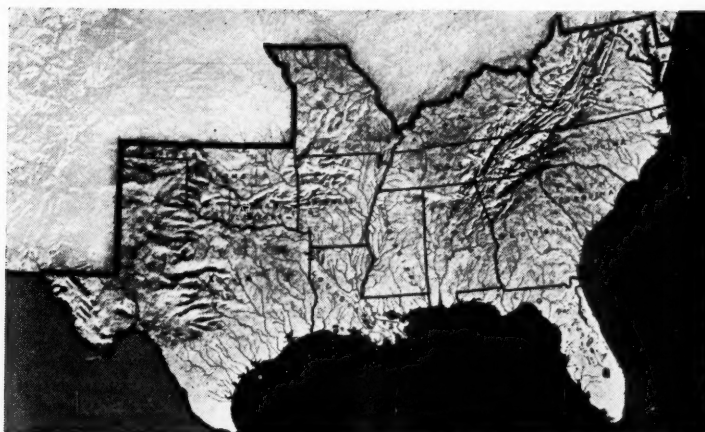
VIRGINIA BRIDGE

Steel Structures

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1933**

Vol. CII No. 3



Photo—Courtesy Geological Survey
The South has 31.8 Per Cent of the Land Area and 33.6 Per Cent of the Population of the United States

MANUFACTURERS RECORD

Devoted to the Upbuilding of the Nation Through the Development of the South and Southwest as the Nation's Greatest Material Asset

Published Monthly

by the
**MANUFACTURERS RECORD
PUBLISHING CO.**

Frank Gould, President

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Subscribers are asked to notify us of change in address to avoid delay in service.

> <

**PUBLISHERS DAILY CONSTRUCTION BULLETIN AND
BLUE BOOK OF SOUTHERN PROGRESS.**

Member, A.B.C.

MARCH NINETEEN THIRTY-THREE

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The Low-down on Upkeep

REMINGTON RAND INC.

SYSTEM SERVICE DIVISION
EIGHTH FLOOR BARTHOLOMEW BLDG.
205 EAST 42ND STREET
NEW YORK CITY

January 5, 1935.

Water Works Engineering
24 West 40 Street
New York, N.Y.

Attention of Mr. Fred Shepperd, Editorial Director

Gentlemen:

We have made an analysis of the questionnaires covering pipe maintenance and are pleased to submit our findings as follows:

- 1 - Completed questionnaires were received from 195 Water Departments throughout the United States.
- 2 - Of these 195 definite replies, we find that 6 reported maintenance costs for Material A, 35 for Material B, 192 for Material C and 36 for Material D.
- 3 - For these four kinds of pipe we have listed in a summary on sheet attached the total cost per mile per year in all cities reporting for each different type of pipe. Key to the designations for each kind of pipe will also be found on attached sheet.
- 4 - We have also listed for the four types of pipe the number of cities reporting "no cost".
- 5 - Our findings show that the cost of maintenance per mile per year was \$38.50 for Material A, \$62.54 for Material B, \$12.48 for Material C and \$43.79 for Material D.

Yours very truly,
REMINGTON RAND, Inc.

G.B. Ramsey

Manager
Analysis and Indexing Service

G.B. Ramsey/t

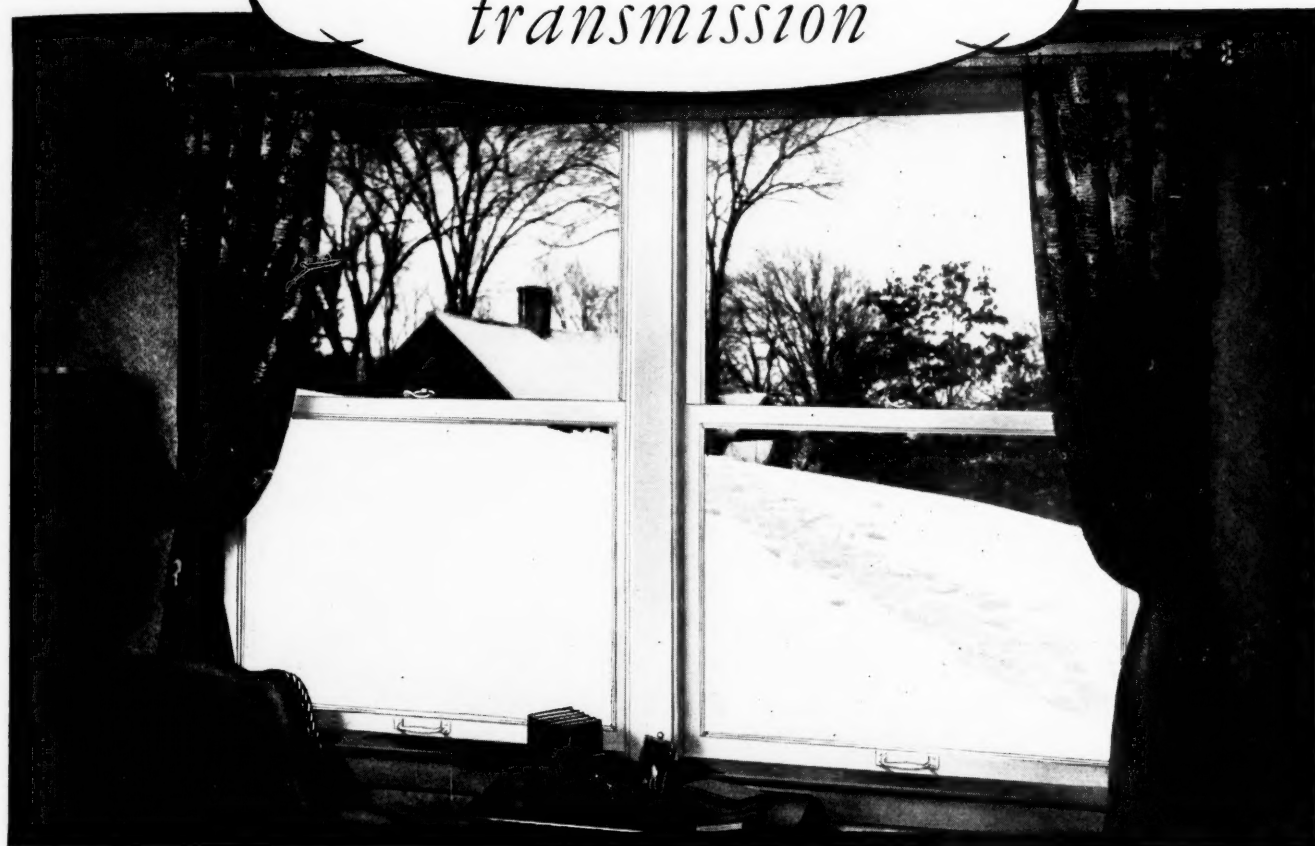
Material "C" is

CAST IRON PIPE

(Permission to reprint the above letter is gratefully acknowledged by The Cast Iron Pipe Research Association, Thos. F. Wolfe, Research Engineer, 309 Peoples Gas Building, Chicago, Ill.)

ep

WINDOW GLASS
*with permanent powers
 of color
 transmission*



ONE of the most important functions of a window is to bring outdoor beauty indoors. This function no window can perform satisfactorily unless the window glass with which it is glazed is able to transmit truthfully the colors of the landscape as well as its other features.

Pennvernon Window Glass, unlike ordinary window glass, fulfills this condition perfectly. For Pennvernon transmits, without weakening or change, the full, natural colors of outdoor scenes. Furthermore, this important quality of color transmission remains unimpaired year after year.

But Pennvernon is remarkable not only for color transmission. Because of the special manufacturing process by which it is made, and the purity of the ingredients used in its making, Pennvernon has an all-around excellence. It is unusually transparent, free from imperfections, brilliant of surface, and long

lasting. In brief, it is the nearest approach to plate glass perfection yet attained in sheet glass making.

Specify Pennvernon Window Glass. It is clearer, more beautiful, gives better color transmission. It is available in single or double strength, and in thicknesses of $\frac{3}{16}$ " and $\frac{7}{32}$ ", at the warehouses of the Pittsburgh Plate Glass Company in all principal cities, and through leading glass jobbers and sash and door manufacturers. Write for samples and our interesting booklet on Pennvernon's manufacture. Pittsburgh Plate Glass Company, Grant Building, Pittsburgh, Pa.

**Pennvernon
 Window Glass**



"I can't do 100-miles-an-hour
... *but give me an oil that can*"



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high speeds, isn't good
enough at *ANY* speed!

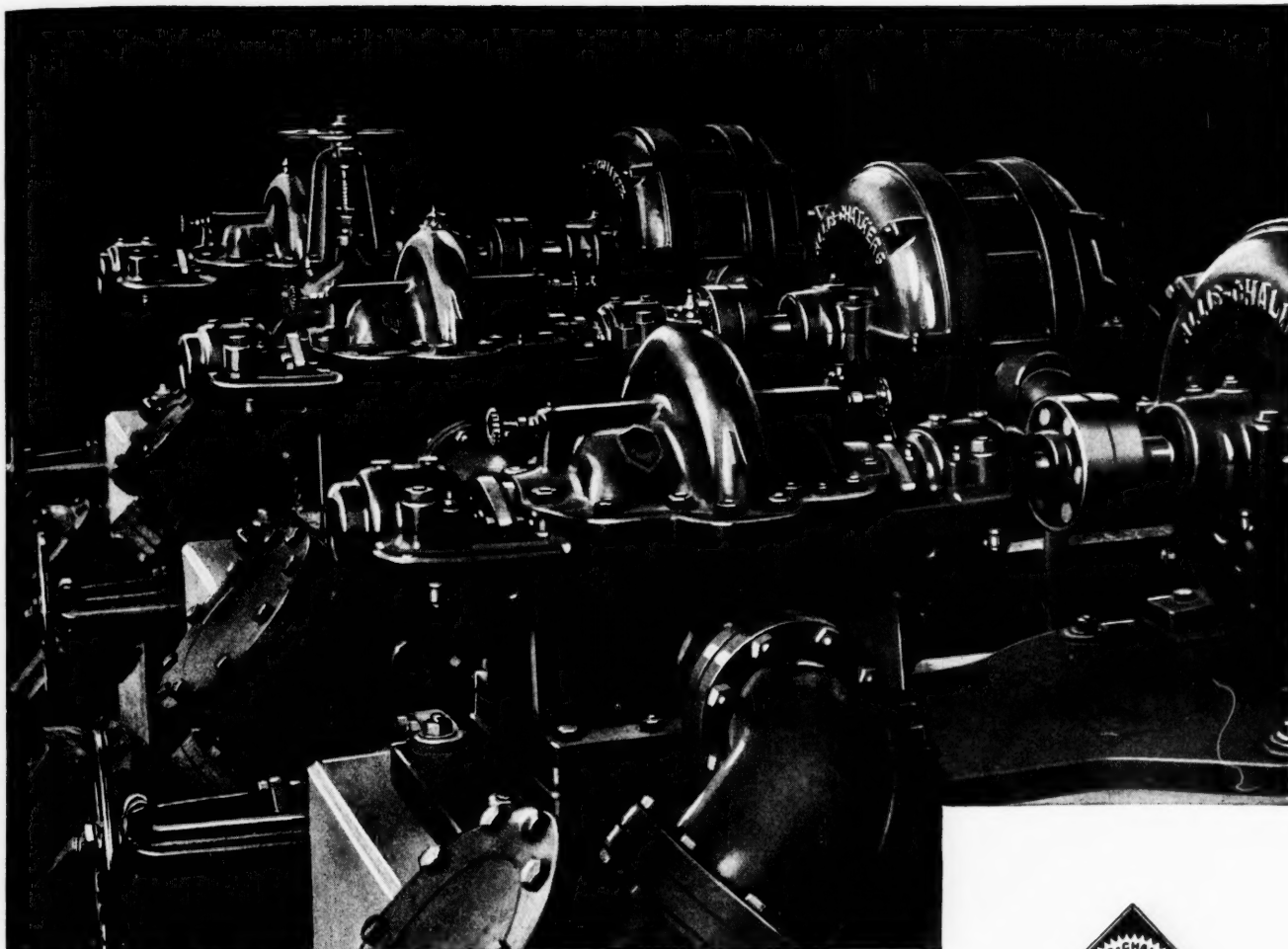


AND WHEN YOU BUY GASOLINE

GET ^{THAT} ^{GOOD} GULF
—it's fresh!

MANUFACTURERS RECORD FOR

Are You PUMPING Economically,or Just PUMPING?



MANY economies can be effected by carefully studying pumping problems and considering what can be accomplished by replacing or augmenting present equipment with Allis-Chalmers high efficiency centrifugal pumping units.

The above units reduced the yearly cost of pumping in one plant \$2500.00. Another unit cost delivered and erected \$4700.00, but saved \$9700.00 in lowered cost of power the first year. These are only two examples of many.

The Allis-Chalmers Type S pump is an improved double suction, split-casing, bronze fitted, horizontal shaft pump designed for long service and high efficiency at a reasonable cost. Standard Type S units are built in capacities from 30 to 30,000 g.p.m. and for heads up to 300 ft. These together with other Allis-Chalmers single and multi-stage pumps take care of most any pumping problem.

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Milwaukee, Wis.

Please send me a copy of
your Bulletin 1650 on
Type "S" Pumping Units.

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Address.....

Position.....

ALLIS-CHALMERS

MARCH NINETEEN THIRTY-THREE

Summary of
1932 Statement



Seventy Years
In Business

FINANCIAL CONDITION, DECEMBER 31, 1932

Bonds and stocks owned . . .	\$186,367,704.94	POLICY RESERVE	\$529,438,050.00
(Insurance Department standard of market valuation)		RESERVE FOR FULL YEAR	
Stocks owned are valued at		DIVIDENDS to POLICY-	
\$25,340,670.60, of which all		HOLDERS IN 1933	20,302,419.03
but \$3,773,691.60 are preferred or guaranteed.		Death and Endowment Claims	
Real Estate Mortgages held . .	281,621,221.53	in settlement	4,960,182.96
Loans on Company's policies . .	92,366,911.24	Deposits and other items awaiting order or not yet due . .	22,099,086.10
Cash in banks and office, Real Estate, Interest and Rents		Prepaid premiums, interest and sundry items including reserve for taxes	5,085,333.51
due and accrued	64,066,830.87	CONTINGENCY RESERVE	13,500,000.00
Other assets	15,033,022.93	GENERAL SAFETY FUND	44,070,619.91
TOTAL ADMITTED ASSETS	\$639,455,691.51	Total Liabilities	\$639,455,691.51

Note: The assets were increased \$18,177,558.42 during the year, while all claims, policy loans and expenses of every kind were paid from current revenues received in the usual course of business.

Policyholders Dividends for the year of 1933 (as provided in the special reserve of \$20,302,419.03 shown above) are apportioned to individual Policies upon the same scale and terms as were current in 1932.

After providing for all known liabilities, the special Contingency Reserve for Adjustments was increased to \$13,500,000.00. The General Surplus or Safety Fund was increased to \$44,070,619.91, making a total Emergency Fund of \$57,570,619.91

Paid to Policyholders and Beneficiaries during year \$105,329,161.14, representing approximately \$348,000.00 each working day of 1932. New Insurance Paid for \$560,267,147.00. Insurance in Force \$3,456,578,156.00.

WALTON L. CROCKER, *President*

ERNEST J. CLARK, *State Agent,*

Maryland and District of Columbia,
1039-1055 Calvert Building Baltimore, Md.

FRANK H. ZIMMERMAN, *District Manager,*

4th Floor, Morris Building, Baltimore, Md.
Charles and Saratoga Streets

JOSEPH J. DUFFY, *District Manager,*

208 Old Town National Bank Building Baltimore, Md.
Gay Street and Fallsway

• Manufacturers Record •

GOVERNMENT IN BUSINESS

GOVERNMENT Competition With Private Enterprise is the title of House report No. 1985. This report was presented to the House of Representatives by Congressman Joseph B. Shannon, chairman of the special committee to investigate Government competition with business. It contains the testimony and formal statements of approximately 625 witnesses, representing 225 lines of competitive industrial and commercial activities in all sections of the country. The Committee sums up the results of its investigations in the following:

"Entrance of the Government into commercial and industrial undertakings, backed by public credit and resources and its military and civilian personnel, for the purpose of competing with the business establishments and the opportunities of livelihood of its citizens, is in general repugnant to our fundamental democratic institutions and aspirations."

Only a few of the governmental activities that encroach on the undertakings of private enterprise were known up to the time of the Committee's investigation. In the course of the public hearings extending over a period of several months, so many phases of the subject were brought to light that the Committee has been unable to make specific findings and recommendations in connection with all of them, but it has endeavored to make general recommendations sufficiently broad to emphasize substantially all of the governmental activities which are reported to be competitive with private business and to reveal the "pernicious results" to individual enterprise.

The evidence indicates that the operations of the Government in the field of private enterprise "have reached a magnitude and diversity which threaten to reduce the private initiative, curtail the opportunities, and infringe upon the earning powers of tax-paying undertakings while steadily increasing the levies upon them," says the Committee. Private citizens cannot compete with public agencies which can turn to the taxing power of the Government for operating expenses or to make up losses. The growth of destructive Government competition is endangering the source from which the Government secures its

revenue. The unfair position in which private enterprise is placed of being compelled to support the Government and at the same time forced to compete with governmental enterprises established and assisted by the taxes levied on business, is creating a dangerous situation. Private ownership and operation cannot survive under such conditions and any attempt to increase the Government's participation in the field of private enterprise will further disrupt business and retard recovery.

The MANUFACTURERS RECORD in previous issues has mentioned some of the industries affected. One of the comprehensive statements presented to the Committee showed that there existed "active and unfair" competition by the Government in the following lines of private industry of merchants, producers and manufacturers:

Agriculture	Feeds
Amusements	Fertilizer products
Architecture	Fruit and vegetables
Baking	Furniture
Banking	Furs
Brickmaking	Gasoline and oils
Brush and brooms	Grain trade
Canning	Hotels and restaurants
Canvas products	Ice manufacture
Cement dealers	Insurance
Chemicals	Laundries
Clothing	Livestock
Coal business	Lumber
Coffee importation	Marine work
Contracting	Mechanical shop work
Cotton industry	Printing and binding
Creameries	Saddlery and harness
Dairy farming	Ship chandlery
Engraving	Shoe factories
Explosives	Stationery
Express business	Wool industry

Remedial legislation is to be sought at the next session of Congress. In the meanwhile, it behooves every business man to familiarize himself with the essential facts developed by the Shannon Committee, and to file with his Senators and Representatives protests not only against further encroachment of the Government in the field of private business but to eliminate the unfair competition that now exists.

RAILROAD RATES

THE demand for lower freight rates is coming from various quarters and is coincident with the railroads' petition to the Interstate Commerce Commission for a continuation, without time limit, of the temporary increases in rates authorized a year ago.

Shippers have been appealing for relief, and at a public hearing in Pittsburgh some of the prominent steel companies went so far as to say they would have to consider moving their plants to the Detroit area, the center of the present demand for steel, unless they were granted lower rates of freight. The National Coal Association, while recognizing the inroads that competition is making upon the coal carrying business of the railroads, asserted it is absolutely essential that freight rates on their commodity come down, in view of the competition to which they are subjected by oil and natural gas. The coal people in their presentation of the case state "no one questions the fact that the carriers as a whole need more of both gross and net revenue, but the facts are that the bituminous coal industry is now required to pay more than its fair share of transportation charges, and as a result carriers are losing a large volume of both gross and net that could otherwise be collected and retained." They assert that bituminous coal is the most important item of railroad traffic and, further, "millions of tons of revenue producing freight have been lost to the railroads and the bituminous coal industry because of the high delivered cost of coal." To meet competition these industries clearly see the necessity of a reduction in the delivery charges they have had to bear.

On the other hand, it is only fair to remember the competition of both private and government owned transportation facilities to which the railroads are subjected. The railroads are limited by government regulation as to the rates they can charge, forced to maintain a specified train service whether profitable or not, operated by "full crews" paid a union wage scale that is out of line with existing conditions and commodity prices. And the railroads must get the approval of the government before they can consolidate lines to effect savings in operating cost. Hampered on every side in effecting economy measures that private business has been compelled to adopt in the face of decreased revenue and declining business volume, it is not surprising that the railroads of the country showed a deficit in 1931 of \$373,292,000. This huge deficit left nothing for investment in new railroad facilities, or for making up deficiencies incurred in previous years, or to help create reserves against bad years in the future. Income and expenditures of Class 1 railroads of the United States

are presented in the following condensed statement compiled from recent data furnished by the Bureau of Railway Economics for 1931:

Total operating receipts from all sources.....	\$4,188,343,244
Total operating expenses and taxes	
For salaries and wages.....	\$1,965,425,779
For fuel	222,094,409
For materials and supplies....	746,236,535
For loss, damage, and insurance	69,098,535
For rents	134,721,537
For depreciation	221,610,498
For taxes, over 96 per cent being paid to state and local authorities	303,528,099
	\$3,662,715,392
Balance	\$525,627,852
Out of this balance from operating receipts, or net railway operating income, the railroads had to pay:	
Total fixed charges	
For rent of leased roads.....	\$145,057,674
For interest on borrowed money	452,923,690
	\$597,981,364
Balance of operating receipts (a deficit)	\$72,353,512
Net miscellaneous income	
Mainly miscellaneous rents.....	29,212,184
Net corporate deficit (transportation operations)	\$43,141,328
Cash dividends on railroad stock	
An average return of 4 per cent on total railroad stock outstanding—securities representing nearly half of the invested capital of the railroads owned by 878,056 stockholders	\$330,150,873
Total balance (a deficit).....	\$373,292,201

The 1932 record of railway operation is equally discouraging. Outstanding features have been summarized by Dr. Julius H. Parmelee, director Bureau of Railway Economics in the following:

Freight traffic declined about 24 per cent below 1931 and about 47 per cent below 1929. The freight traffic level is now down to that of the years prior to 1910.

Passenger traffic fell 23 per cent below 1931, and 45.9 per cent below 1929. Total passenger-miles in 1932 were less in number than in any year since 1900.

Operating revenues declined 25.4 per cent under 1931 and 50.3 per cent under 1929. The aggregate for 1932 was less than in any year since 1915.

Operating expenses were reduced 25.5 per cent below 1931, were lower than in 1929 by 46.7 per cent, and were less than in any year since 1916.

The operating ratio averaged 76.8 per cent in 1932, as compared with 76.9 per cent in 1931.

Net railway operating income aggregated \$334,000,000, a decline of \$204,000,000 under 1931 and \$940,000,000 under 1929. The decline from 1929 to 1932 was 73.8 per cent. The rate of return earned on property investment was 1.25 per cent as compared with 2 per cent in 1931 and 4.84 per cent in 1929.

Freight train speed was the only factor of railway performance to make a new record during 1932.

Property which is not used directly in the service of transportation is not included in railroad valuations, nor considered in determining whether rates are adequate and reasonable. Neither the profits nor the losses are chargeable to railroad operation.

The earning power of the railroad industry must be determined by what it earns from furnishing transportation. Both non-operating receipts and non-operating expenses are excluded from the above statement.

In studying the question of lowering railroad rates in the face of mounting deficits there are many factors

to be considered. A point not to be overlooked is the degree of government control that denies the authority to put into practice economies that might make it possible to reduce rates.

L. F. Loree, president of the Delaware and Hudson Railroad Corporation, an outstanding authority, in his testimony before the Senate Finance Committee, summed up in the following suggestions his ideas of the remedies to be applied to the present railroad situation:

"If now we look for a remedy we must point (1) to the excessively restrictive control imposed by National and State governments; (2) similar restrictions by the pressure of union labor organizations; and (3) fundamental and radical mechanical and economic changes that must, even in normal times, materially modify and divert demand, supply and means of transportation.

"The troubles in which we are now involved are not to be cured by poulticing where the use of the knife is essential. We must face them with the attitude of the laboratory method.

"In an industry as far-flung and as diversified as is railroading, and one covering so long a period of development, the need for adjustments are apparent on every hand. Intelligently made, the railroads might rapidly assume their old-time efficiency and usefulness.

"To adapt the railroads to the changing conditions, we must, among other things, look to—

- "1. The adjustment of taxes, wages and working conditions.
- "2. Elimination of waste through the abandonment of all unused service, obsolete facilities and mileage no longer justified by the traffic.
- "3. The development of the essential railroad facilities to the highest state of efficiency through the improvement of grades, reduction of curves, shortening of lines, application of heavier rail and ballast, strengthening of bridges and improvement in equipment.
- "4. Amelioration of the five major hazards of the employee; sickness, accident, death, unemployment and superannuation, or the incapacity of old age.
- "5. The following are changes that it is suggested might be considered in a recasting of the Interstate Commerce Commission's activities:
 - "a. Extend regulation to all commerce and all carriers which the Federal Government has power to regulate.
 - "b. Separate the conflicting and inconsistent powers of prosecutor and judge, neither of which can be adequately exercised when both functions are in the same hands; vesting the former fully in the Interstate Commerce Commission, and leaving the latter to the courts.
 - "c. Omit Section 15a of the Interstate Commerce Act, which, while affording less protection than the Constitutional Provision against confiscation, provides for recapture of so-called 'excess earnings.' This repeal for the future and retroactively has been recommended by the Interstate Commerce Commission.
 - "d. Omit Section 19a, which provides for valuations. Although enacted on March 1, 1913, the valuations have not been completed and all work so far done is condemned by decisions of the Supreme Court.
 - "e. Omit the 'Commodities Clause,' Section 1 (8), which prevents any carrier from moving in interstate transportation any commodities, except timber and its products, in which it has an interest.
 - "f. Leave to the courts the power to award damages.
 - "g. Prevent the compulsory and misleading enhancement of operating expenses by including estimates of depreciation.
 - "h. Repeal the Hoch-Smith resolution.
 - "i. Remove restrictions upon control and operation of boats and other accessory services by railroads.
 - "j. Omit the power to fix rate divisions except when the Commission has fixed a joint rate and the participating carriers are unable to agree."

The full text of Mr. Loree's discussion of "The Railroads, Their Relation to the Causes and Cures of the Commercial Depression" before the Senate Finance Committee has been published in pamphlet form.

TAX PROGRAM

IN the effort to secure tax adjustments for the relief of real estate, the National Association of Real Estate Boards has adopted a tax program for legislative consideration. Six fundamental proposals are presented:

1. State control of local tax levies and bond issues, under proper safeguards.
2. Limitation of the property tax by State constitutional provision.
3. Spread of school costs to a wider tax base.
4. Expenditure of funds from State gas and vehicle taxes upon city streets as well as upon rural highways.
5. Restriction of use of special assessments for financing public improvements.
6. Consideration of the income or use value of property as one of the major factors in arriving at a fair assessment for tax purposes.

However, in meeting any deficit in revenue that would be expected through the reduction of real estate taxes or assessments, it would be unwise to increase general taxes for in these times the whole tax burden of the people must be lessened through greater economies in government operation. Any broadening of the tax base through a sales tax or otherwise, except as an immediate emergency measure, should be undertaken with the end in view of relieving real estate from the heavy tax load that is helping to undermine property values and thus is destroying a source for public revenue. A minimum rate applied to the broadest tax base is the fairest tax system that can be devised. A general sales tax with the lowest possible rate is the obvious method to adopt.

COMMUNITY UPBUILDING

THERE is evidence that the waiting attitude of business men in many communities is giving way to group action. Here and there movements are being initiated by reorganized Chambers of Commerce and other business bodies for business improvement and civic betterment.

Elsewhere in this issue are two articles illustrating what can be accomplished in city building and business planning. One shows the results of a five-year program of development undertaken at Fort Worth, Texas, which places that city in a position to take advantage of opportunities that lie ahead for business expansion, while the other outlines a program that business men of Columbia, Ga., have adopted in preparation for "the coming era of progress."

Despite prevailing conditions new industries are being established in the South. As the business cycle swings upward, this movement will spread and communities which have had the foresight to get ready will reap the reward. Constructive advertising can be made to play an important part. A large steel casting plant to be located at Cordele, Ga., is the direct result of the advantages of that location set forth in an advertisement in this publication.

WORKING OUT OF THE DEPRESSION

A NORTH CAROLINA furniture manufacturing concern, after two years in receivership, has paid over 100 per cent to its stockholders and the property was turned back in full time operation to its owners. Few businesses can equal this remarkable recovery in these times, but many concerns and communities have been waging a successful fight against the depression. Volume in some lines has increased, although values, due to lower prices, have declined. In the annual report of Swift & Co. it was shown that its total sales in 1932 were 25 per cent below 1931, yet more meat was sold and consumed than before. A Chicago candy manufacturer by repackaging its line into smaller units so increased its business that it was necessary to add more than 3400 employees and purchase about three times the raw materials formerly required. The Indiana Limestone Company reports 42 per cent more business on its books than in 1931. Resuming work after a long suspension, the Ohio plant of the E. W. Bliss Company has enough business in sight for six months' operation. Introducing a new cabinet design refrigerator, the Norge Corporation, Muskegon, Mich., is operating at capacity with three full time shifts.

Activity in the South

Turning to the South, one may find many companies which are making records worthy of comment. Here are listed some outstanding examples in various lines of endeavor.

The Jarman Shoe Company of Nashville, Tenn., which was organized in 1924, produced more shoes in recent weeks than in any similar period in its history, writes F. E. Ziegler of the Chamber of Commerce. It has more people employed than ever before and its daily output is greater than at any previous time. Unfilled orders at the beginning of this year showed a 36 per cent increase over the same period of 1932.

W. R. Wills, president of the National Life & Accident Insurance Company, Nashville, and operating in 21 States, reports that improved collections for the past four months afford encouragement.

Two years ago one of the larger manufacturing concerns of the central South owed more than \$2,000,000 to banks.

Now in debt only \$500,000, it expects to be out of the bank's hands by mid-summer.

Despite general conditions, the Utica Knitting Mills of Anniston, Ala., have continuously enlarged their operations and increased capacity, reports Charles F. Varn of the United Chambers of Commerce. In 1926, the first unit was constructed; in 1928 the second unit; in 1932 the third unit, and at present the fourth unit is under way. In addition, last year the Richland Springs, N. Y., plant of the company was moved to Anniston.

The American Net and Twine Company, Blue Mountain, Ala., is another textile industry in the Anniston district which has had remarkable growth. This concern, employing 500 workers housed in its modern mill village, is completing a \$55,000 expansion program.

The M & H Valve & Fittings Company, manufacturers of bell and spigot fittings, valves and flanges, Anniston, under new management is making progress toward overcoming difficulties incident to the depression.

Commenting on the business situation in Roanoke, Va., B. F. Moomaw of the Chamber of Commerce states:

"We haven't a single completely closed industry nor have we had (with the exception of one closed for about two months) since this economic depression began several years ago."

S. H. Hearne of Albemarle, N. C., said:

"We began the cotton mill industry in Albemarle in 1897 with a capital stock of \$52,000, and today our cotton mill investment exceeds \$10,000,000 and our mills are going concerns in an era of depression."

The Pannil Knitting Co., makers of underwear, Martinsville, Va., recently started the construction of a new addition, the sixth since it entered business in 1925.

The N & W Overall Co. of Jackson, Miss., with a branch plant at Lynchburg, Va., making a general line of overalls, work shirts and work clothes, has been operating both plants at capacity for some time, reports Wendall W. Black of the Jackson Chamber of Commerce.

The most significant industrial development of New Orleans was the expansion of the Lane Cotton Mills, which doubled capacity and added 700 employees, writes Wilson S. Callender, New Orleans Association of Commerce. Also he cited the expected doubling of the

capacity of the steel barrel plant by the Wilson and Bennett interests, and the continued growth of the operations of the Kieckhefer Container Company, makers of fibre boxes.

Bright Spots in Southwest

From the Southwest may be sampled other encouraging reports presenting the optimistic side of the business picture. William Holden, executive vice president of the Tulsa Chamber of Commerce, enumerates in the following a number of concerns which are demonstrating the fact that business is to be had despite general dullness:

The new \$110,000 bleachery of the Sand Springs (Okla.) Textile Mills was ready for production the latter part of 1931. The unit has a capacity of 80,000 pounds of sheeting material a week, which means 5500 sheets and 3000 pillow slips a day. The mill as a whole has been operating at capacity all during the past year, employing on the average 550 persons. It purchases \$275,000 worth of cotton from nearby territory.

The Kerr Glass Company, makers of Kerr fruit jars and jelly glasses, has enjoyed a steady growth. A second story is being added to its office building which will help take care of extra space needed for a print shop, storeroom and experimental kitchen.

Since starting in 1928, the Southwest Box Company has had rapid and continuous growth. A year ago they added "Polarcans," especially designed paper ice cream containers of five gallons capacity, to their line.

The Ozark Chemical Company, manufacturers of sulphuric acid, has continued to operate during the past two years on a basis of 75 per cent of its productive capacity of 1928-30. Originally started in 1925, it has increased its plant five times since, and is now spending approximately \$200,000 on a new chemical plant in Texas to produce sodium sulphate, Glaubers salt and salt cake.

The Good Humor Ice Cream Company increased business last summer 600 per cent over the previous season, and this winter added soups to its line and reported a successful business which necessitated additional factory space.

Reopening last May with one shift of 40 employees with the intention of working on orders and closing down at intervals, the Tulsa Steel Mill has become a full time industry.

Floor space has been increased 40 per cent
(Continued on page 48)

IRON AND CEMENT OUTPUT

By

Edwin C. Eckel

Consulting Geologist, Washington, D. C.

A FEW years ago it was possible to suggest, in the columns of Iron Age, that the American cement industry was growing at a more rapid rate than our iron and steel industries, and that as a matter of fact when both products were compared on the same unit (tonnage) basis, the cement industry was a close second to the iron trade. It was suggested further that the prospects were that this differential growth would continue for some time, and that in some nearby period the cement tonnage would pass the iron tonnage.

There is always, of course, a certain pleasure in seeing one's prophecies come true, but in this particular case I feel that the decision is being won on a foul. Because in place of the passing of steel by cement taking place on some near-future boom, as I had frankly expected, it has taken place during the current depression. So American cement has finally passed American iron in tonnage output, not because our cement industry grew faster than our steel industry, but because it fell off less during the past two years of retrogression in all industries.

Nevertheless, the event has occurred, and because of its importance in itself and in its industrial and financial implications, it is worth while to study the facts.

As bases for comparison we have official figures for the cement and steel output of the country for very many years back. For our present purpose we can use the totals for Portland cement output as given, disregarding the relatively slight amounts of other types of cement which are made, just as we will on the other side of the account disregard the tonnages of ferro-alloys. The cement statistics are still quoted in barrels of 375 pounds net. The barrel is obsolete, and its retention as a unit is archaic; but the idea seems fixed in the cement trade mentality and there is no use trying to change it. For our immediate use, however, we will convert these imaginary barrels into long tons, so that our comparisons with the steel

output may be on a strictly comparable basis.

The product which best represents the real growth of the steel industry is the amount of *new* iron brought into use each year. So to get our fairest measure I think we can only use one possible index—the tonnage of pig iron annually produced. In converting barrels into tons a simple division by 6 introduces an error of less than one percent, which is negligible in the present connection. So for simplicity we will assume that six cement barrels equal one long ton.

This is not the place to retell the history of the two industries we are now comparing—from our immediate standpoint—it is only necessary to recall that the American iron industry, though dating back to very early Colonial days, only took its real start during our War of 1812; and its later great development really dates back only to the period after our Civil War. The American Portland cement industry is of even later inception and development; it started in 1875-1876 with its first small output, and began rapid growth only around 1895. So though both industries are old enough in a way, their current American development is not a matter of so very many decades in either case.

As the basis for later comments we may profitably tabulate the outputs of iron and Portland cement in the United States since 1875, selecting only critical years, representing the tops of booms or the bottoms of depressions, in place of covering up the really important

points by giving data for all the years during that half century or more of growth in both industries. I have accordingly done this in the following table, in which outputs of both products are stated, for the first time I believe in any such comparison, in the same unit of weight—the long or gross ton of 2240 pounds.

UNITED STATES OUTPUTS OF PIG IRON AND PORTLAND CEMENT

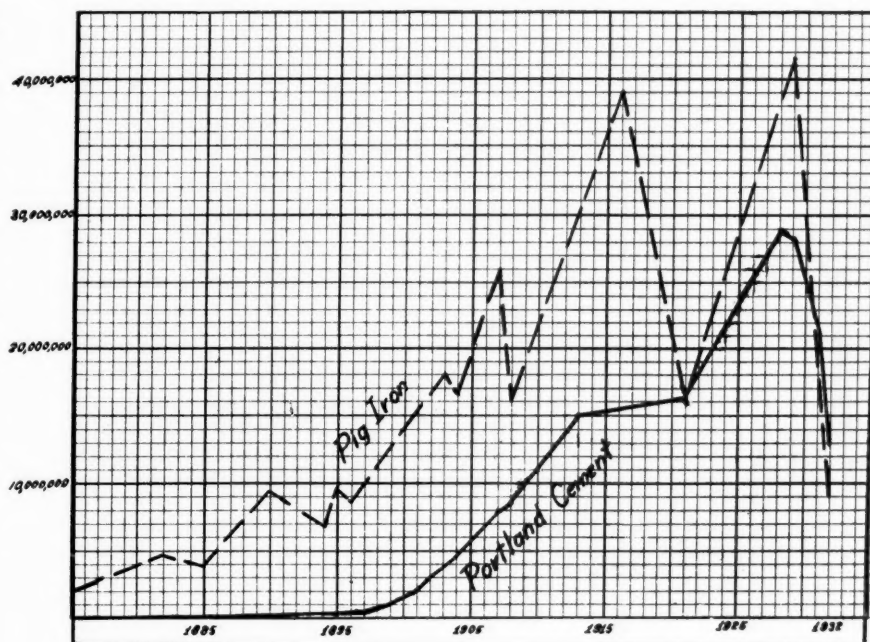
Year	Pig iron, tons	Cement, tons
1875	2,024,000	None made
1882	4,623,000	14,000
1885	4,044,000	25,000
1890	9,203,000	56,000
1894	6,657,000	133,000
1895	9,446,000	165,000
1896	8,628,000	257,000
1903	18,009,000	3,724,000
1904	16,497,000	4,417,000
1907	25,781,000	8,131,000
1908	15,936,000	8,512,000
1913	30,389,000	14,935,000
1916	39,000,000	15,253,000
1921	16,039,000	16,473,000
1928	38,804,000	29,383,000
1929	41,549,000	28,441,000
1931	17,958,000	21,000,000
1932	8,750,000	13,000,000

In order to bring out some of these comparisons most sharply, the accompanying diagram is presented. This compares the American pig iron and Portland cement outputs from 1875 to date, both stated in long tons. Ordinary fluctuations from year to year have been disregarded, so as to bring out more clearly the manner in which the two industries have been respectively affected by longer and more important swings in our economic cycles.

It will be seen that the cement industry has grown more steadily than the iron industry in these recent decades; its gains during booms have not been so spectacular, but on the other hand it has lost less of these gains, during

(Continued on page 48)

Comparison American Pig Iron and Cement Production (Long Tons)



AIR TRANSPORT GROWTH

By
Thomas B. Doe
President,
Eastern Air Transport,
Inc.

SOME of the most significant advancement the air transportation industry has made was effected in 1932. In past years progress had principally been through rapid expansion of lines in new territory, but last year airlines turned toward the ground and made engineering and other fundamental improvements in surface facilities which tell the close observer of the industry's faith in the future and its plans for established permanency.

It is apparent that greatest possibilities lie ahead of the industry. Air transportation as it now exists, or as it has been in the past, for all of our activity has now brought us to a point where we are, in a broad sense, *ready to begin*. The business is tremendously ahead of its position of five years ago, both in operations and engineering, when we were just founding our services. We had few airways, few airports, few instruments, few of everything of which we have an abundance now. Until now we have been building the foundation; not the house. Now the foundation is about completed and we are ready to go forward with our development, to make air transportation

one of the most useful allies of industry and social life the world has known.

National and International Significance

Many people are inclined to look upon air transportation from its local or sectional aspect, whereas a true picture of its significance cannot be obtained unless this aspect is considered in connection with its national and international significance. For instance, Baltimore, one of America's most important industrial cities, has a very good airport and correspondingly good passenger, express and U. S. airmail services. But these services would mean little to Baltimore if they did not connect the city with other important centers in distant sections of the United States as well as with Canada, the West Indies, Central and South America. This city is connected directly or through adjoining services with 200 cities in the United States and Canada and with many others in distant Latin America.

Dual Purpose Service

There are two fundamental factors behind the development of air transportation; one of them, the most important at present, being public service. The other is national defense. In its public service air transportation is calculated to fit into the social and commercial life of each city served by allowing dependable, swift, convenient and economical transportation of passengers, goods and correspondence. In this way general advancement in commercial and

Radio Communication Is Important

Here is shown the installation in an airliner of Eastern Air Transport



Captain Doe, the author of this article, is an outstanding leader in air transportation. He holds important posts in aviation and affiliated companies, is chairman of the Pioneer Air Transport Operators' Association and chairman of the Air Transport Section, Aeronautical Chamber of Commerce of America. In addition to his presidency of Eastern Air Transport, Inc., Captain Doe is vice-president of North American Aviation; vice-president, Intercontinent Aviation; vice-president, China Airways Federal, Inc.; vice-president, Condor Corp.; director, Sperry Gyroscope Company; director B/J Aircraft Corporation and holds other offices in organizations allied with air and ocean transportation.

Captain Doe was born in Virginia and graduated from the United States Military Academy. During the World War he was chairman of a committee of manufacturers and military experts and headed a confidential mission to Europe for the War Department in 1918.

It is of importance to note that he brings out in this article that the South is served by 42 per cent of the country's established airways and 37 per cent of the scheduled operations.

social intercourse between sections is allowed.

In its national defense factor, air transportation serves in two ways. For one thing, it develops at its own expense the improved instruments, communication facilities, airplanes, ground facilities and methods which are instantly available to the Government in event of a national emergency, but which would cost the Government many millions of dollars if it were required to develop them itself. It keeps constantly at work improving its facilities, and all improvements may be incorporated into military aviation. The period of greatest development is now at hand.

Indispensable Reserve Force

Also, air transportation serves as the reserve upon which the armed forces may call should war strike. The value of this is easily recognizable, especially if one remembers back to 1917. At that time war had been carried into the air for the first time and America was in the war. But there was no aviation reserve. A handful of military pilots and the most mediocre sort of civilian aviation were all that was available when suddenly a tremendous need for airplanes and forces to operate and maintain them were essential. The United States literally flung millions of dollars into what undoubtedly was the most in-



Curtiss Condor in Flight Over Atlanta, Ga., En Route to the North

Test flights are being made of the new 1933 Curtiss Condor planes which will greatly reduce the flying time between the South and the North. Ten Condors will operate over the Eastern Air Transport routes

significant industry of the day. But there was no reserve to fall back upon: everything that was available, except raw material and untrained men, was in use. The resulting waste in money and life forms one of the most distressing chapters of the war. Partly-trained men were flying poorly designed aircraft, while untrained men were attempting to maintain the machines. The lesson that was learned was deeply impressive. It was that money cannot produce knowledge quickly, for knowledge is an element of time.

Cities such as New York, Norfolk, Charleston, Savannah, Jacksonville, New Orleans and Houston should derive considerable comfort from the fact that organized airways, equipped with all facilities, lead from other sections of the country direct to them. In case of attack by an enemy, fighting craft would use these highways of the air to speed men and munitions to their aid. In all previous wars the forces in the immediate vicinity were the ones involved in battle, but in future wars troops and guns which may be in Chicago at the outbreak of a battle in a Southern city will arrive on the scene and go into action before any decisive encounter can be made. Gen. Sir Ian Hamilton, of the British Imperial Army, recently declared at a meeting of military men in London:

"Huge masses of infantry will not engage in the next war, which will last only a few weeks, instead of years, as past wars have. Tanks and airplanes will swallow the infantry and artillery and bring a swift conclusion to hostilities." If this prediction is to be carried out, air forces far beyond the strength of those now available to the army and navy must be had. The only logical answer to the problem is an adequate commercial aviation reserve, maintained at little if any expense to the Government. Else the possibility of defeat looms for the weaker air power.

Rapid Growth of Southern Air Transportation

Five years ago only one transport line operated in the South, this flying between Chicago and Dallas, carrying mail only. The line was 987 miles long and the scheduled operations for one month were approximately 61,000 miles. At that time, all the air transport routes in the United States covered a territory

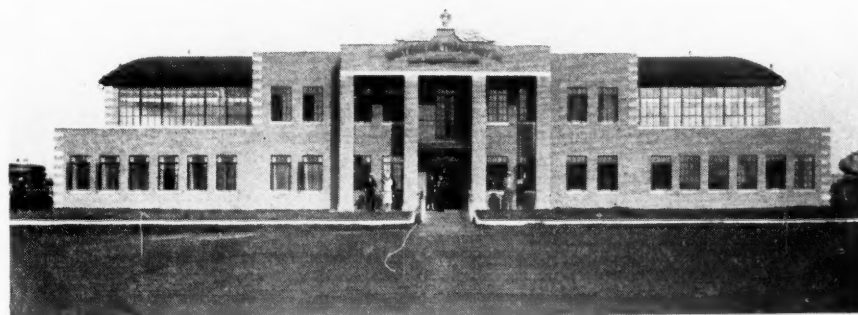
represented by 7800 miles of airway with scheduled operations of 500,000 miles monthly. Accordingly, the South was served by 12½ per cent of the established airways and 12 per cent of all scheduled flying.

Since that time, the development of air transport facilities has been rather rapid, especially in the South. The lines which have been placed in operation and connect the South with all parts of the country since January 1, 1928, are as follows:

New York—Atlanta
New York—St. Petersburg—Miami
New York — Louisville — Nashville —
Fort Worth
New York—Washington—Nashville
Richmond—Norfolk
Charlotte—Columbia—Augusta
Atlanta—Los Angeles
Atlanta—New Orleans—Houston
Chicago—Memphis—New Orleans
Omaha—St. Louis—Atlanta
Dallas—Galveston
Dallas—Brownsville

A Modern Terminal Building

Passengers from the South disembark at the Newark, N. J., airport where this building is located



The lines named represent a total airway mileage of approximately 13,300 miles and a monthly schedule of about 1,500,000 flying miles. The increase in the monthly mileage from 61,000 to 1,500,000 is enormous even over a period of five years. The South is now served by approximately 42 per cent of the country's established airways, and 37 per cent of the national scheduled monthly operations.

Eastern Air Transport Serves 25 Southern Cities

One of the principal airlines serving the South is Eastern Air Transport, operating between New York and Miami, serving 26 cities in this territory. The route over which this company flies is 2487 miles long, and includes a trunk line following the coast from New York via Charleston and Savannah to Miami; a trunk route from New York to Atlanta and connecting short lines to Atlantic City from Newark Airport; Norfolk from Richmond; Camden, Columbia and Augusta from Charlotte, and Orlando, Tampa and St. Petersburg from Daytona Beach.

Eastern Air flies 3,000,000 miles annually on schedule, about 95 per cent of it through Southern territory. Twenty-five of the cities it serves are in the South. The greatest importance of the service to the cities is not the fact that it joins the South with the South, but that the South is joined by this swiftest possible service to all other sections by connections with the national airway system, and with the entire Western Hemisphere through connections with international airlines.

Technical Advancement

In 1932 this company was outstanding in its promotion of technical advancement. It completed a radio communication system which a scientific magazine quoted as being the most modern in use today; assisted in designing new airliners which were developed strictly from the air transport viewpoint, and which are now under construction; began active study for the reduction of cabin noises in aircraft; trained its pilots in instrument flying and enlarged its terminal facilities.

In its development work Eastern Air's engineers had the full cooperation of the Sperry Gyroscope Company, especially in instrument work and the problem of noise reduction; of the Radio Frequency Laboratories and Radio Corporation of America in communications development, and the Curtiss-Wright Corporation in advanced design of flying equipment.

The radio system of this company consists of 11 ground stations and over

40 aircraft stations. In it for the first time radio telephony and telegraphy were combined for aircraft use, making the best features of each available without the disadvantages of either. The complete radio installation in an airplane weighs only 85 pounds, yet the equipment, through efficient engineering, is so fool-proof that it is practically impossible to silence a station. There are so many new and exclusive features in the network that considerable space would be required for a complete discussion of them.

Maintenance Facilities

Candler Field, Atlanta, is the operations base for Eastern Air, and this company has erected and equipped one of the largest airport structures in existence there. Every maintenance detail is performed by the company's workmen in this plant, from minor adjustments to complete overhauls of planes and engines. This statement takes added significance when it is known that Eastern Air Transport operates Curtiss Condors, largest land planes in regular use in America. They have a wingspread of 91 feet, and in height are equal to the average two-story building. Until last year all of these craft were flown back to the factory for repairs and maintenance, but a new shop built during the year allows the company to do the work itself. Propeller maintenance, which formerly was done by outside agencies, is now also done in Atlanta. The operations manager for this company, Charles H. Dolan, has his headquarters in Atlanta.

New Airlines Reduce Travel Time

The new airliners which Eastern Air assisted in designing and which now are under construction are 1933 Curtiss Condors, built by the Curtiss-Wright Corporation in St. Louis, Mo. In principle they are like the present Condors, which have been operated with such suc-

cess between the South and North. They carry 15 passengers and a crew of three, compared with 18 passengers and a crew of three in the present craft; fly at a cruising speed of 145 miles an hour, compared with the 118 miles an hour of the older models, and are quieter and more comfortable. When placed in service they will considerably reduce travel time in the South.

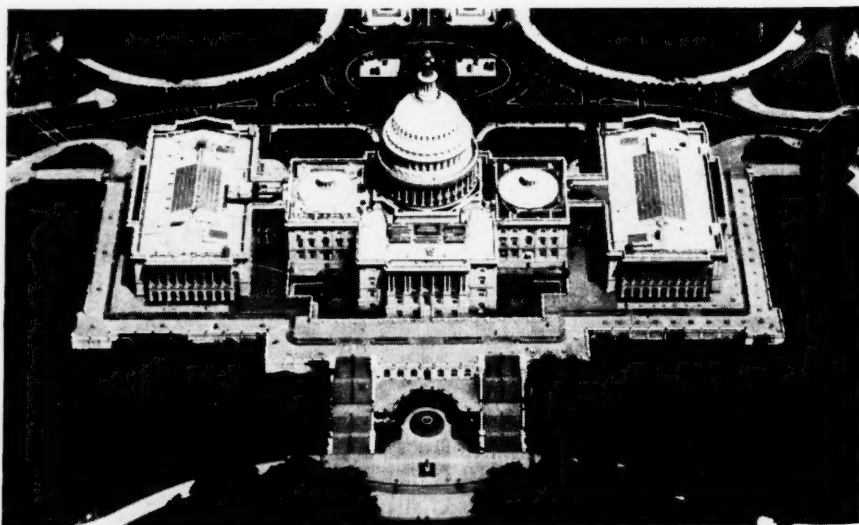
Air Express Service

Last year seven different airlines formed an interline air express system, known as General Air Express, with the Postal Telegraph Company as commercial agent. This brought the important service to the South for the first time. Eastern Air and the American Airways, the two principal airlines operating in Southern territory, are both associated with the other companies in the express movement and marked success has attended the new service.

Not in commercial aviation alone did the South advance during 1932. Military aviation also was materially strengthened by the completion of Randolph Field, the "West Point of the Air," in Texas, and the rapid progress in the construction of Barksdale Field at Shreveport, La. These military strongholds, together with others already located at San Antonio, Galveston and other points, including the Navy's bases in Florida and the magnificent army post at Langley Field, Va., undoubtedly places the Southern part of the United States in first position as to this phase of defense.

Fighting planes on flights from these posts use the civil airways in moving about the country. On the instrument boards of each are the Sperry Horizons, Directional Gyros and other instruments so essential to safe flying, but which were developed by air transportation.

The National Capitol is only 7 hours by air from Atlanta, and 10 hours from Miami



LAYING THE GROUNDWORK FOR PROGRESS

By

W. J. Fielder

President, Columbus Chamber of Commerce

A BETTER business movement is actively under way at Columbus, Ga. The Program of Betterment, involving five main objectives, was adopted after consideration of the answers to a questionnaire mailed to some 500 business and professional men of the city. Replies were requested to three questions, (1) What is the greatest need of Columbus today? (2) What could a stronger Chamber of Commerce do to improve and benefit individual business, and (3) What could a strong Chamber of Commerce do to improve business generally in this city and entire area?

An excellent response to this questionnaire was had with a great variety of worthwhile suggestions. The thought that Columbus should first be sold to herself, and that our possibilities, some of them latent, should be developed first, seemed to be the dominant theme.

A representative committee tabulated these answers, considered them carefully and mapped out a brief and definite program, which did not preclude major objectives and activity with which the Chamber of Commerce has all along been concerned. This program provides for the development of certain specified new trade territory, and the cultivation and strengthening of trade connections in the Columbus area; the fostering and development of tourist travel and conventions; the completion of certain projected hard surfaced roads radiating from Columbus; maintaining the good will and advertising value of Fort Benning located near here; and certain changes in the set-up and routine work of the Chamber of Commerce.

Mr. H. Dixon Smith was asked to form an advisory committee of 100 citizens interested in the future welfare of Columbus. This was done and the committee met and adopted the program worked out by the committee previously appointed for that purpose. A campaign for new memberships was also authorized and launched at this meeting.

Columbus has had for many years an efficient Chamber of Commerce which has functioned without any spectacular results, but which carried on its routine work. No campaign for memberships or money has been had for some seven years, and on account of prevailing conditions its revenue had declined to the point where only routine and minor projects were possible. This condition required that the general public should be awakened to the fact that while it was not a miracle working organization, that it was indispensable for the growth and development of the city. All thinking men recognized this necessity, but our people had grown accustomed to taking the Chamber of Commerce as a matter of course, and presumed that it would carry on somehow.

During recent years Columbus, like a great many other towns, has had a tendency to over-organize, and there had come into existence a number of other clubs and associations, all with worthy objects, and managed as well as conditions permitted. This condition gradually gave rise to an overlapping and duplication of effort in many instances, divided interest and activity, and a generally inefficient manner of handling civic affairs. To overcome this condition and to co-ordinate these various activities was made one of the underlying objectives of this campaign.

To further this movement, efforts were made to have the Columbus Chamber of Commerce become a clearing house for all civic activity, and to have the other civic and business organizations to clear their major projects through it. Various means to this end were suggested, but probably the most practical was that of a definite tie-in through membership on the Board of Directors of the Chamber of Commerce of an official or representative of the various clubs and associates, some nine or ten in number. This proposition was submitted to the several bodies affected and met with hearty approval from all of them. There was no effort or disposition to supplant any of the organizations by the reorganized Chamber of Commerce, though in several instances it was felt that a properly equipped Chamber of Commerce, under present conditions, might quite properly carry on the principal work just as efficiently, or more so, and at less cost to individual members.

Everyone connected with the Chamber

of Commerce, or with this movement, was keenly conscious of the prevailing business and industrial conditions. While Columbus, through some favorable local conditions, has probably not suffered as intensely as some other communities, conditions here are in the main just what they are in other parts of the country, and the average business man is discouraged and not disposed to make any great outlay in any sort of drive or campaign. Manifestly the time was not suitable to any comprehensive movement, but where all effort was to be centered on immediate betterment of local conditions, and from which the small man might readily expect some results beneficial to him, we felt that sufficient interest, man power and money could be marshaled to really accomplish some benefit.

No one knows when the future trend of business will incline definitely upward, or how rapid the rise will be, but when it does come an efficient organization, with the bedrock laid during a depression, and with a united citizenship, will be in a favored position to realize on it. In the meantime the simple fact that our people are getting together and busying themselves about helping their own condition, and not waiting for an upturn of business to flow in from elsewhere, is sure to produce more optimism, and, what is most sorely needed, faith in our country.

A very moderate goal was set, 600 members and \$15,000 in money, a small percentage of what would ordinarily be obtainable in a town with the resources of Columbus. An organization was set up and Mr. John E. Cecil of Washington, D. C., was employed to handle the details, while Mr. Frederick B. Gordon, a prominent business man who had recently retired from the presidency of the Columbus Manufacturing Co., one of our larger industries, was selected as general chairman of the movement.

Like every other town we need and want industries, and will overlook no reasonable opportunity to get them, but at the moment we must see that our own possibilities and resources are conserved and developed, and if this is done to the greatest degree, it will sustain us through this "slough of despond."

The response of our most prominent business men to the demands of their time and effort and substance has been very pleasing. They realize the value of cooperation and the relatively greater results to be accomplished at this time in any definite movement.

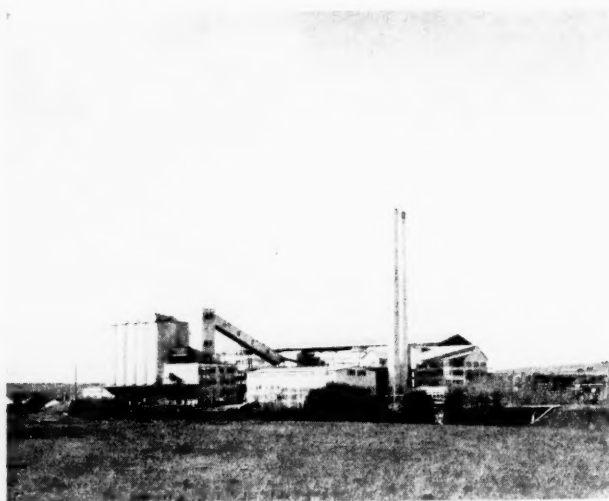


Northwest Highway Approach
to Fort Worth, Texas

\$100,000,000 IMPROVEMENT PROGRAM

By
Roscoe Ady

Some Major
Objectives
Attained by
Fort Worth
and Tarrant
County, Tex-
as, in the
Past Five
Years



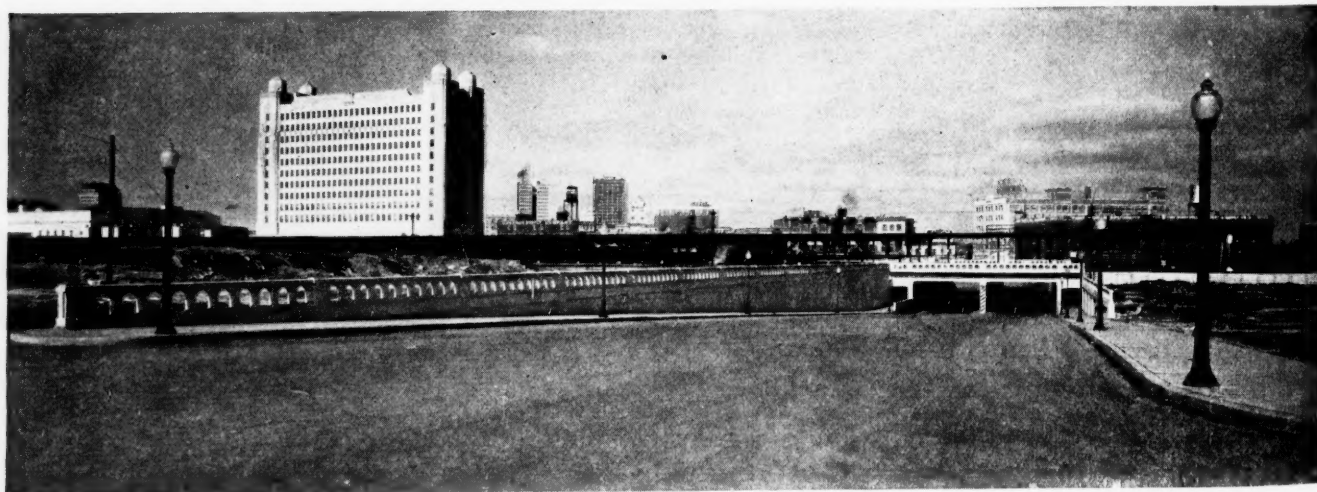
Trinity Portland Cement Company's New Unit

UNDER the title "Five Years of Progress", the Fort Worth Chamber of Commerce has issued a 48-page booklet describing an improvement program on which \$100,000,000 have been expended in Fort Worth and Tarrant County, Texas, since January 1, 1928. The booklet is a final report on this work. Nine of the ten major objectives set out in the program have been attained.

The first of the ten major objectives in the five-year work-program was the securing of a union depot. In November, 1931, the Texas & Pacific Railway Company

South Main Street Underpass

Texas & Pacific Railway Company's passenger station and office building shown at left



Right—Fort Worth Sand & Gravel Company

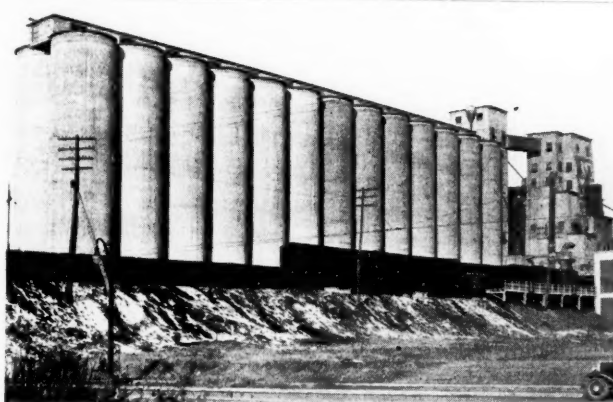
completed in Fort Worth a combination passenger station and office building, thirteen stories in height, on which more than \$1,500,000 was expended. In addition to the Texas & Pacific, it is used by the International-Great Northern, Fort Worth & Denver City and the Missouri-Kansas-Texas Lines.

The second objective was the location of new industries in Fort Worth. The report shows that 158 concerns were located during the period; that 23 companies already established have built new plants or major additions and that there have been more than 50 minor additions.

Securing an adequate city auditorium was the third objective. Because of economic and financial conditions the City Council deferred calling an election to authorize construction of an auditorium. This is the only objective unattained.

The fourth objective, completion of the Tarrant County Road Building Program, which originated with the Chamber of Commerce, has been carried out. Roads and bridges costing more than \$7,500,000 have been built. Many of these are illustrated in the booklet. The recent passage of a bill by the Texas Legislature, providing that the State shall assume all bonded indebtedness of counties for expenditures on State highways, will lift the major burden of the cost from the shoulders of Tarrant County taxpayers.

Promotion of Trade Extension was the fifth objective. The report shows that 76 trade trips and good-will tours



Center—Fort Worth Elevator Company Addition

took 12,561 Fort Worth citizens into 231 communities.

"Advertise Fort Worth" was the sixth objective. Details of a successful advertising campaign, in which the MANUFACTURERS RECORD was extensively used, are set forth.

The seventh objective, was the development of the Fort Worth market. In the period 154 new wholesale houses were secured and Fort Worth was made Southern headquarters for Montgomery Ward & Company who built a \$2,000,000 plant.

In carrying out the eighth objective numerous streets have been widened and others opened; six underpasses have been built; a viaduct is under construction; three more have been authorized and two bridges costing more than \$200,000 each, were completed.

Securing adequate freight terminals, the ninth objective, was accomplished in good measure. The Texas & Pacific spent \$14,000,000 on Lancaster Yards and shops, a terminal warehouse and other terminal improvements. The "Katy" expended \$500,000 on new yards and shops. The Santa Fe constructed a new yard and has plans for a freight terminal. The Texas Ice & Refrigerating Company spent more than \$500,000 on a fruit and produce terminal.

The tenth objective, the building and maintenance of a "strong, modern and efficient" Chamber of Commerce, is treated at length in the booklet, and it is hoped sufficiently demonstrated by the other accomplishments which are set forth in the report.

Bottom—Sinclair Petroleum Refinery

Left—Maddox Milk Products Company



GUARANTEED WATER SUPPLY

SITUATED in the Shenandoah Valley of Virginia at the base of the Blue Ridge Mountains is the town of Waynesboro, noted for its never failing springs, one of which has a flow of over 10,000,000 gallons daily. These natural springs, one of the wonders of Virginia, are a part of the secret of the rapid strides this town has made as a commercial and manufacturing center. It is evidently destined to become a more populous city.

In the early part of 1931 plans were made to add to the water works system another source of supply which would not only take care of present domestic and industrial demand, but provide an adequate supply, sufficient to meet the town's needs for many years to come.

A test of one of these natural springs, located about three miles from the center of the town, proved it to have sufficient capacity to meet these requirements. The work of enclosing and covering this spring to form a clear well entailed many difficulties because of the numerous cracks in the rock formation below the earth's surface. During the impounding of the spring the water would break out through adjoining seams in the rock, necessitating an L-shaped concrete enclosure.

The pump house, located at one end of this clear well, is a modern brick structure, containing two centrifugal pumps driven by two 75 horsepower Allis-Chalmers 2300 volt squirrel cage motors. The pumps, located below the bottom level of the clear well, always have a pressure on the suction end so that automatic priming is not necessary.

The water is discharged through a 16-inch pipe line to a 2,000,000-gallon sunken reservoir located about two miles

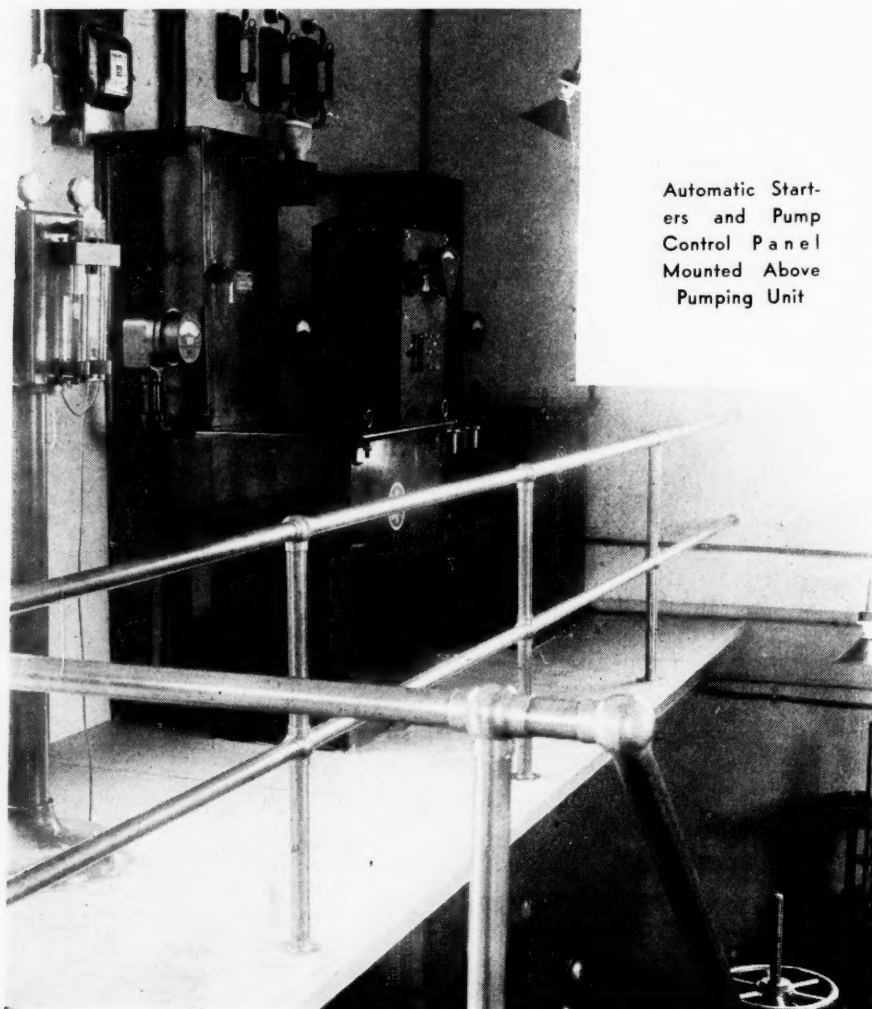
away on the side of the Blue Ridge Mountains. The pipe line follows the natural contours of the earth's surface and at one point passes below a river bed, so that the water surges back and forth for quite some time when a pump is started or stopped.

Installed in the pump house on the ground level are the automatic starters for these motors. They are the oil-immersed, completely wired, totally enclosed type containing disconnect switches in their upper compartments and are equipped with meters for indicating the load on each motor. They provide continuous torque from the initial starting until the motors have accelerated and are running at full speed. Surges, due to transition from the starting side to full voltage running side, are eliminated by this continuous torque system of acceleration.

Mounted between these starters is the automatic pump control panel which starts and stops the pump in accordance with the demand on the reservoir two miles away. On this panel is an EC&M Altitude Regulator, a 3-pole transfer switch and two manually-operated master switches for testing either pump unit. A surge cushion, mounted on the back of this panel, is necessary to smooth out the fluctuations in pressure due to the disturbances and water hammer when a pump starts or stops so that these impulses will not be registered by the altitude regulator connected to the delivery line near the discharge end of the pump. The difference in level between the pumps and overflow on the reservoir is approximately 155 feet. Normally, this automatic pump control panel is adjusted to provide starting and stopping within a variation of two feet in the level of water in the reservoir, although regulation as close as 18 inches can be obtained.

At present 2,000,000 gallons of water can be supplied daily by the pumping station. Only one motor driven pump unit is operated at one time. Once a day the station is inspected, at which time the inspector, by reversing the small 220 volt knife switch on the pump control panel, transfers the control of this panel to the other motor driven pump unit in order to equalize the wear. Except for this, the station operates automatically.

This project was drawn up and engineered by W. B. Galleher, Jr., Consulting Engineer for the city, under the direction of I. G. Vass, City Manager, Allis-Chalmers Company, Milwaukee, Wis., supplied the motor-driven pump units and The Electric Controller and Manufacturing Company, Cleveland, Ohio, designed and built the automatic motor starters and the automatic pump control panel.



Automatic Starters and Pump Control Panel Mounted Above Pumping Unit

FINANCING BUILDING IMPROVEMENTS

By

J. L. Wood
General Credit Manager
Johns-Manville Corporation

TWENTY-FIVE MILLION dollars in building materials could have been sold last June and July if adequate financing had been available.

Reports from banks and Building and Loan Associations all over the country indicate a mounting demand for loans to finance residential repairs and remodeling, and all of the consumer needs in this direction cannot be supplied from these sources.

During the past three years of curtailed purchasing power, a tremendous back-log of every conceivable human need has been built up. A huge dormant market is lying waiting for the proper facilities with which to crystallize it into action. This is particularly true of residential maintenance. Thousands of homes are beginning to deteriorate because the necessary cash is not readily available to provide for proper repairs.

The market is so large that it is difficult to estimate the extent of it, but it can be said with safety that there is a present need for repairs and improvements involving a quarter of a billion dollars in general building materials—lumber, millwork, roofing, flooring, insulation, tiling, etc.

The mere fact that a man owns his home and has a substantial equity in it is evidence of industry, thrift and permanence. Moreover, when a man repairs, or otherwise improves his home he is making an investment, protecting or adding to the investment which he already has in his property.

Installment selling has had an amazing degree of success in the sale of automobiles, furniture, radios, electrical appliances, etc., but the building material industry has been slow to adopt this modern merchandising method, notwithstanding the fact that its adaptation to the home repair and remodeling field is particularly sound.

We have been through three years of the most serious depression of world history and, if ever a financial program could have been put to a test, certainly

installment selling has passed under the microscope.

The results have been astonishing. In 1932, installment defaults had risen less than one per cent over the average established up to 1929. And of particular importance is the fact that in 1932 each of the four largest finance companies in the country showed substantial profits. In other words, the four leading institutions of the nation dealing solely in credit as a commodity, and with the results of their operations dependent upon their Credit Departments, have far out-reached their industrial colleagues.

Many reasons have been advanced to account for the lumber and building material dealers failing to utilize Deferred Payment Merchandising. The outstanding one undoubtedly is the fear of the consequences of resources; yet it seems to me that this is the least tenable of all of the objections advanced. Let's assume that John Smith wants to reroof, or otherwise repair, his home. The dealer sells Smith the materials, or contracts to do the job, on a so-called cash basis, which, it would seem, means anything from ten days to Kathleen Mavourneen—"It may be for years and it may be forever." If Smith's credit is poor and he doesn't pay, Mr. Dealer certainly loses his investment in that sale or that contract. He cannot lose any more if he sells the job on a Deferred Payment basis and handles the financing through a reputable finance company. On the contrary, under the Deferred Payment Plan he secures, at no cost to him, the services of a highly trained Credit Department and the organized efforts and prestige of a finance company in effecting the collection. And the average losses on installment contracts, even in 1932, were less than 2 per cent of the total volume financed.

With new construction curtailed almost to the vanishing point, the building material dealer must look to the repair and remodeling market for his very existence. It isn't a hard market to find. Any dealer can walk down the streets of his community and spot the prospects—without the aid of opera glasses.

These prospects are not the major remodeling situations, involving a complete change in the physical appearance of the home, but rather the thousands of homes requiring repairs and remodeling involving an average cost of \$200 or \$300—reroofing, residing, repairing or rebuilding

General Adoption of
Deferred Payment
Merchandising Plan to
Finance Home Repairs
and Improvements Es-
timated Will Open
\$250,000,000 Mar-
ket for Building Ma-
terials of Every De-
scription

of a porch, a finished room in the attic or in the basement, etc.

Most important of all, the building material dealer must realize that conditions in the industry have changed; that no longer is the speculative builder and the general contractor selling his materials for him. He is no longer merely running a warehouse for the storage of building materials. He has become, or must become, to continue to exist, a building material merchant. He must realize that the home-owner needing repairs or remodeling is not interested in the materials in the dealer's inventory. The home owner is not concerned with so many board feet of lumber, so many squares of roofing or so much insulating board. He has a mental picture of what the completed job will look like and he's got to be sold in terms of a complete job.

The dealer cannot expect to cash in on this market unless he's set up to render a complete service to the home owner, through his own Contract Department, or through the organization of a few live contractors in his community—the builders, the roofers and the carpenters. The dealer must realize that repairs and remodeling can be sold only through complete unit solicitations. Failure to realize this is the outstanding reason why the building material dealer to date has not done more than scratch the surface of this market.

The problems for the building industry can, in my firm conviction, be materially lessened, in direct ratio to the energy and enthusiasm which is put into the repair and remodeling field with the indispensable aid of Deferred Payment Merchandising.

\$27,390,000 OF CONSTRUCTION CONTRACTS

CONTRACTS awarded for building, engineering and construction projects in the sixteen Southern States during February aggregated \$27,390,000, as compared with the January valuation of \$19,472,000 for similar expenditures. Last month's awards represent a gain of 40 per cent in value as compared with January figures, and an increase of over 55 per cent as compared with the valuation of \$17,604,000 covering building and construction contracts let in February, 1932.

In the first two months of this year building and construction awards in the South aggregate \$46,862,000, based on a compilation of individual reports published in the MANUFACTURERS RECORD DAILY CONSTRUCTION BULLETIN; whereas, in the first two months of last year contracts let totaled \$35,891,000. The valuation of contracts let to March 1 this year is 30 per cent in excess of the combined lettings in January and February, 1932. Besides, the February total exceeds the value of lettings in both March and April 1932, amounting to \$27,079,000 and \$26,024,000, respectively.

Industrial Construction Contracts

Awards for industrial and engineering building—factories, mills and industrial plants generally, filling stations, garages, bus and truck terminals, levees, revetments and dikes, sewers, drainage and waterworks, and miscellaneous work not segregated under any of the other major classifications, hold first place in February awards totaling \$9,019,000. In the preceding month awards for road, street and paving work, amounting to \$8,751,000, held first place. The high record of industrial and engineering awards last month is particularly noteworthy when it is considered that contracts placed for additions to established plants and for new industrial enterprises involved \$4,865,000.

A \$2,000,000 oil pipeline in Oklahoma was the major project let in February. Cold storage and ice plants, oil refineries, a radio station, lumber and textile mills, creameries and dairy plants, canning and packing factories, a paper mill and a diversity of enterprises go to make up the month's total.

General Building Awards

General building work, including apartment houses and hotels, association

February Awards in the South 40 Per Cent Above January and 55 Per Cent Higher Than in February, 1932. The \$46,862,000 of Contracts Let Since January 1 Is a 30 Per Cent Gain Over the First Two Months of 1932.

and fraternal structures, bank and office buildings, churches, dwellings and stores, let to contract in February had an aggregate value of \$1,279,000, compared with \$1,215,000 of similar awards in the first month of the year.

Public Construction Awards

Dredging work in rivers, inland waterways and harbors along the Atlantic and Gulf Coasts, for which contracts were let last month, aggregated \$2,679,000. Closely allied with this class of work are levees, revetments and dikes, contracts for which in February amounted to \$354,000. As a result of funds being made available by the Reconstruction Finance Corporation, sewer, drainage and waterworks contracts last month totaled \$766,000, as compared with \$580,000 representing similar awards in January.

Roads, streets and paving work held second place in the value of awards during February. The total of \$8,751,000 for road building assumes added significance when it is considered that some of the States have not yet embarked on their 1933 road program because enabling legislation is now pending, prohibiting the mapping out of definite programs. While some States are curtailing State highway work, counties and road districts are vigorously pushing maintenance and general improvement programs, thereby creating a demand for a variety of road-building equipment and materials.

Awards in February for public buildings totaled \$8,341,000, as compared with \$5,804,000 under this classification in January. Apparently the figures reached during some months of 1932, when Federal building work was at its peak, are

not likely to be equalled soon, since contemplated new public buildings announced during February had a value of but \$7,201,000 as compared with \$12,306,000 representing proposed public building construction announced in January.

Proposed Construction

An encouraging volume of work is in sight, based on the announcement during the first two months of the year of proposed construction estimated to cost in the aggregate over \$98,000,000.

Projected road, street and paving work, amounting to \$13,296,000 in February, holds first place with industrial and engineering projects second, amounting to \$10,863,000. More than \$7,000,000 represents the valuation of proposed new industrial building regarding which preliminary announcements were made during February, a \$2,500,000 power plant for Danville, Va., being the major undertaking. At St. Louis a \$300,000 power plant is proposed; a New Orleans group announces plans for several potash plants to cost \$1,000,000; Abbeville, S. C., interests will expend \$100,000 for a hydro-electric project. Airport improvements projected at Fort Worth and New Orleans will entail expenditures of \$200,000 and \$300,000, respectively.

Contemplated public buildings have a total value of \$7,201,000, while general buildings in preliminary stages of planning call for an investment of \$1,716,000.

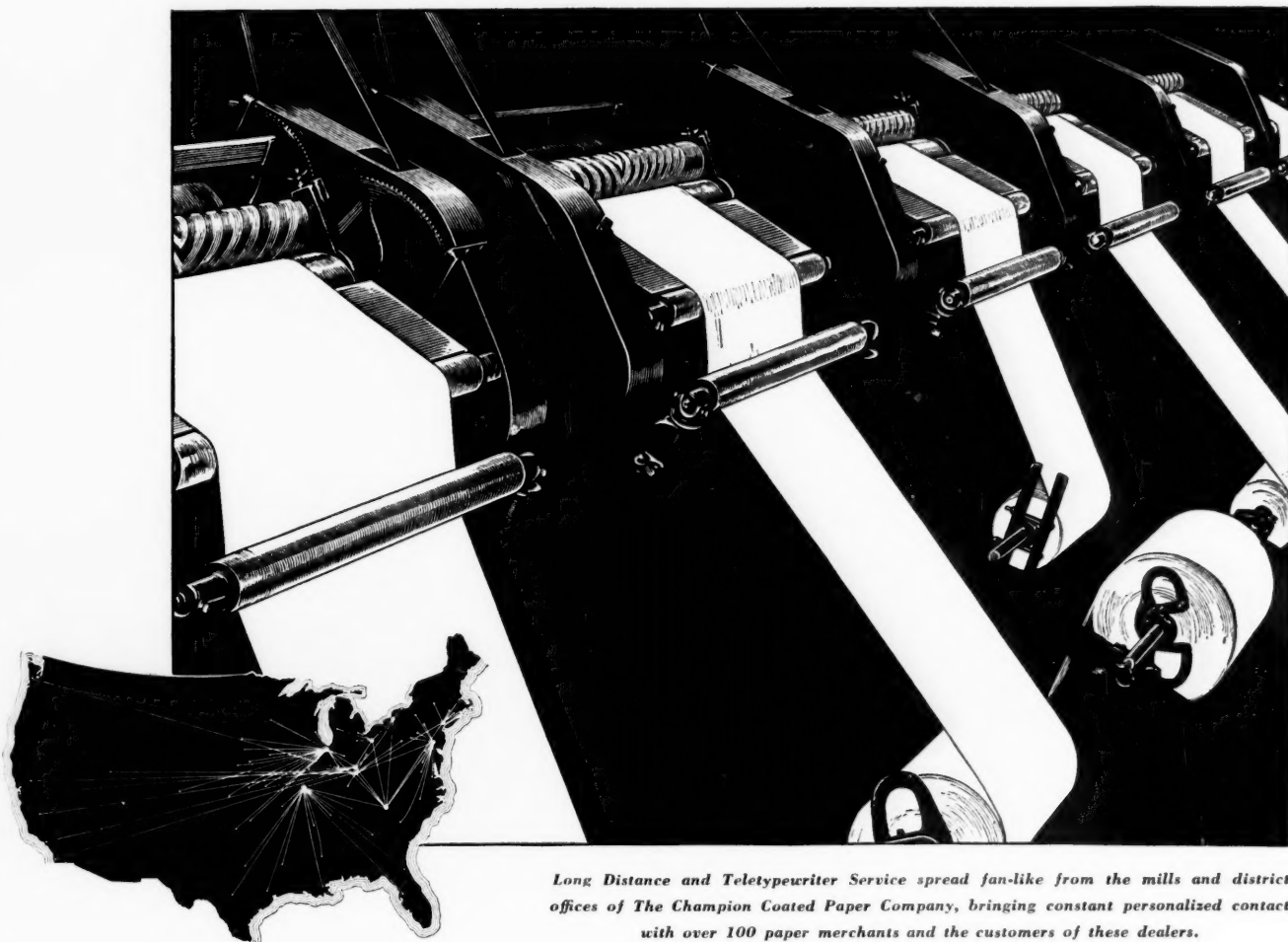
CONSTRUCTION ACTIVITY FOR FEBRUARY, 1933

	Contracts Awarded	Contracts to be Awarded
General Building		
Apartment houses and hotels	\$275,000	\$345,000
Association and fraternal	35,000
Bank and office	75,000	255,000
Churches	212,000	311,000
Dwellings	477,000	515,000
Stores	240,000	255,000
	\$1,279,000	\$1,716,000
Public Buildings		
City, County, Government and State	\$6,887,000	\$4,812,000
Schools	1,454,000	2,389,000
	\$8,341,000	\$7,201,000
Roads, Streets and Paving		
.....	\$8,751,000	\$13,296,000
Industrial and Engineering Projects		
Dredging	\$2,679,000	\$1,152,000
Filling stations, garages, etc.	345,000	225,000
Industrial plants	4,865,000	7,312,000
Levees, revetments, dikes, etc.	354,000
Warehouses	10,000
Sewers, drainage and water works	766,000	2,059,000
Miscellaneous projects	115,000
	\$9,019,000	\$10,863,000
Grand total	\$27,390,000	\$33,076,000

"WE ADDED THE TELEPHONE TO OUR SALES FORCE"

says the President of The Champion Coated Paper Company

"... AND IT BECAME OUR STAR SALESMAN"



Long Distance and Teletypewriter Service spread fan-like from the mills and district offices of The Champion Coated Paper Company, bringing constant personalized contact with over 100 paper merchants and the customers of these dealers.

AMONG today's successful concerns is The Champion Coated Paper Company, of Hamilton, Ohio. Since 1929 it has increased its production capacity by nearly 25 per cent.

Like other successful companies, Champion finds Long Distance telephone service one of its essential and profitable aids in meeting changed business conditions. "The telephone is in the position of star salesman," says the President. "It is more important than ever in keeping in touch with the broad limits of the national market. We have materially increased our use of Long Distance in recent months."

Executives of small concerns as well as large are using Long Distance to put new vigor into selling activities. It is *economical* . . . savings in time and money can be effected in many ways. It meets today's demand for *speed* . . . business men can visit

any number of customers in minutes. It is *personalized* . . . friendly voice-contact is brought to transactions between men separated by hundreds of miles. It is *two-way* . . . proposals can be discussed pro and con, and agreements quickly reached.

Long Distance brings new economies and new efficiency to every department of a business. Let your local Bell Company show you how.

LONG DISTANCE RATES ARE LOW

Typical Station-to-Station Rates				
From	To	Daytime	7 P.M. 8:30 P.M.	
Boston	Philadelphia	\$1.25	\$1.10	\$.75
Minneapolis	Chicago	1.60	1.35	.90
Miami	Atlanta	2.55	2.10	1.40
Denver	St. Louis	3.25	2.65	1.75
New York	San Francisco	9.00	7.25	5.50

Where the charge is 50 cents or more, a federal tax applies as follows: \$.50 to \$.99, tax 10 cents; \$1.00 to \$1.99, tax 15 cents; \$2.00 or more, tax 20 cents.

JUST CALL YOUR BELL



TELEPHONE BUSINESS OFFICE

MARCH NINETEEN THIRTY-THREE

\$140,000,000 FOR ROAD WORK IN SOUTH

BASED on reports received from highway departments in twelve of the sixteen Southern States covering proposed programs, and on estimated expenditures for the remainder of the group, \$140,000,000 will be expended in the territory from Maryland to Texas during 1933 for maintaining existing systems and building of new roads and bridges. Contracts awarded in the sixteen Southern States during January and February for road, paving and bridge work amounted to \$16,822,000. Coupled with the carryover of State projects initiated last year, the large aggregate expenditure now being undertaken by States, counties and road districts will enable highway construction in the South to go forward on an extensive scale under the readjustments that have taken place. Some States have yet to approve a definite program for 1933, except that made possible through Federal Aid. The respective legislatures now in session are considering various highway finance measures and various changes in administration of the road departments.

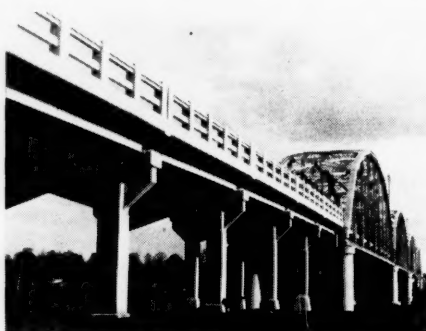
Plans to divert gasoline tax revenue and motor vehicle license fees to other than road-building purposes are being vigorously pushed by varied interests who see in such procedure a way to eliminate the necessity for other forms of taxation, but who apparently have

not taken full cognizance of the small percentage of high type highways completed on State systems, or of the need for carefully maintaining existing roads so that the investments already made may be adequately protected. Students of highway finance and administration, users of highways, road builders and engineers generally are alive to the situation, and are putting forth renewed efforts to confine motor vehicle tax revenues solely to road-building and maintenance work.

In addition to the money being expended on State highway systems, counties and road districts are going ahead with new work and maintenance operations in volume, thereby providing employment for local labor as well as creating a demand for road-building materials and machinery.

The summarizations herewith and additional details published in the MANUFACTURERS RECORD of January,

Jonesville Bridge over Black River, Louisiana



One of the New Highways in North Carolina



1933, indicate the scope and character of road-building activities in the States from Maryland to Texas.

Alabama. The construction program of the State of Alabama Highway Department will consist almost entirely of emergency Federal Aid construction. The maintenance budget for 1933 is estimated at \$2,120,000. Projects to be constructed in Alabama with Federal funds during the fiscal year 1932-33 include: Concrete pavement, 136.6 mi., \$3,069,000; lime rock asphalt pavement, 29.26 mi., \$627,952; bituminous road mixed surface, 27.78 mi., \$298,000; graded earth, 46.3 mi., \$456,000; bridges totaling 7353 feet estimated to cost \$478,000. The grand total of projected construction is 152 miles, estimated to cost \$5,101,000.

Arkansas. This year's program of the Arkansas State Highway Commission will consist of grading, gravel surfacing, bituminous retread surfacing, Portland cement concrete paving and bridge work. A highway maintenance bill, providing \$2,000,000 a year for the next two years for maintenance of State roads, was recently signed by Governor Futrell. The Act sets the maintenance item second to the payment of Martineau law bond requirements, but moves the priority of maintenance ahead of maturities and interest on revenue and road district bonds. On January 1, 1933, 57.79 miles of roads, estimated to cost \$900,000, were under way. Bridge work under commitment January 1 had a value of \$700,000. James R. Rhyne, of Little Rock, has been named Director of Highways, the new office being created by an Act which set up a new Highway Commission on February 1.

Florida. The State Road Department of Florida estimates that there will be available for road construction and maintenance this year \$6,894,000. The estimated resources include: Balance on hand January 1, 1933, \$240,000; gasoline tax 3 cents per gallon, \$6,500,000; Federal Aid anticipated \$3,400,000; county funds, \$250,000, or a total of \$10,390,000. Earned unpaid obligations total \$2,623,000 and administration costs \$173,000, or a total of \$2,796,000, making total funds available \$7,593,000. The final budget for the Road Department will be adopted this month. The tentative program calls for completing approximately \$6,000,000 of projects carried over from 1932; the payment of approximately \$2,500,000 in back bills; the use of approximately \$2,000,000 for main-

"CATERPILLAR"

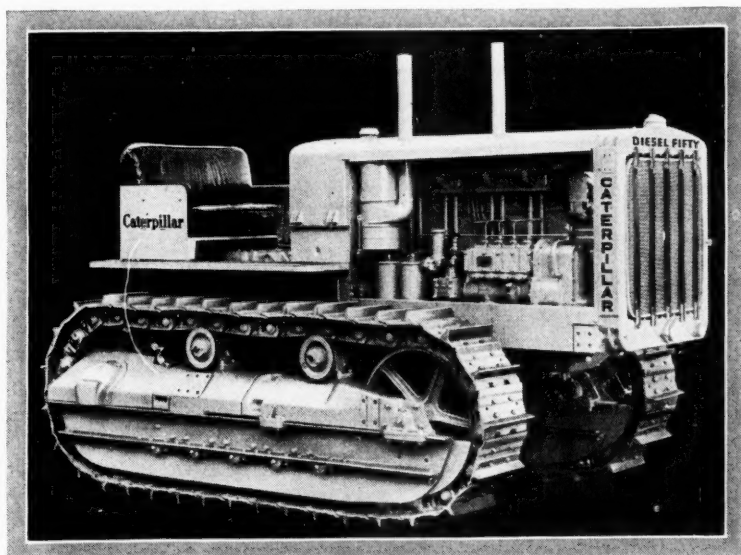
DIESEL RESULTS

for a new range of users!

THE astounding talents which earned such sudden and spectacular acceptance for the larger "Caterpillar" Diesel—are now offered in a smaller package: The new "Caterpillar" Diesel Fifty Tractor!

The revolutionary operating economy—to pull its full loads on a puny ration of cheap fuel oil. The same heavy-duty engine design—with split-second response to its governor and with unmatched smoothness at every speed-range. The original rugged simplicity that assures accurate, positive injection of *clean* fuel—that gives even the inexperienced operator prompt and complete command of its best performance. The starting ease—the freedom from field adjustments—the balanced Diesel tractor engine excellence which power-users have long sought, and which "Caterpillar" Engineers set out to achieve seven years ago!

The broad tracks for year-round traction—the proverbial "Caterpillar" stamina for long life. And now (as with the "Caterpillar" Seventys) power-users have the choice of gasoline or Diesel power in the "Caterpillar" Fifty!



Caterpillar Tractor Co., Peoria, Ill., U.S.A.
Track-type Tractors Road Machinery
Combines

(There's a "Caterpillar" Dealer Near You)

Prices — f. o. b. Peoria, Illinois

FIFTEEN	\$1100	FIFTY	\$3675
TWENTY	\$1450	DIESEL FIFTY	\$4500
TWENTY-FIVE	\$1900	SEVENTY	\$4750
THIRTY-FIVE	\$2400	DIESEL SEVENTY	\$6250

CATERPILLAR

REG. U. S. PAT. OFF.

T R A C T O R

MARCH NINETEEN THIRTY-THREE



Colorado River Bridge, Texas State Highway No. 10



Steel Bridge on Route 25, Cape Girardeau, Mo.



Parkton-Winnfield Highway Underpass, Winn Parish, Louisiana
Courtesy U. S. Bureau Public Roads

tenance of existing system, and an expenditure of about \$3,500,000 for new road and bridge work. It may be that economies to be effected will permit of the initiation of approximately \$5,000,000 worth of new projects.

Georgia. Until legislation now pending in the General Assembly is definitely settled, the State Highway Board of Georgia is unable to determine the extent to which construction can be carried out this year. It carried over, however, from 1932 to be completed this year approximately 175 miles of paving of various types, and 300 miles of grading. It is estimated that the Georgia Department will receive this year a total of \$7,925,000 from the gasoline tax; \$3,500,000 from the motor vehicle license tax, together with Federal Aid and funds from other sources.

Kentucky. Since its reorganization by the 1930 Legislature, the Kentucky State Highway Department has constructed 3977 miles of various types of highways, the total expenditure being over \$36,626,-

000 to November 1, 1932. Concrete road construction totaled 505 miles, costing \$9,984,000; rock asphalt mileage totaled 203, costing \$3,729,000; surface mixed type mileage totaled 251 costing \$1,901,000; water bound macadam mileage amounted to 9.2 miles, costing \$97,594; traffic bound macadam mileage aggregated 1157 miles, costing \$6,094,000, and gravel road mileage amounted to 348, costing \$1,474,000. A total of \$11,742,000 was spent on grade and drain construction.

Louisiana. The Louisiana Highway Commission will this year expend approximately \$3,000,000 on maintenance of existing roads. Its 1933 program will consist principally of the completion of the work brought forward from 1932, the construction of some of the most urgently needed bridges and grade separations, and the hard surfacing of some previously graded projects. The major objective will be the construction of the embankment and bridges on the relocation of the Old Spanish Trail between Rigolets and Pearlinton, to involve an expenditure of over \$445,000 for five bridges and of \$700,000 for a dredged embankment, as well as provide a bridge between Louisiana and Mississippi over the Pearl River. Of 381 miles of hard surfacing work brought forward from 1932, 154 miles had been laid but had not been accepted as of December 31, 1932. The jobs brought forward from last year are as follows: Hard surfacing, 380.9 mi., \$7,717,000; gravel surfacing, 79.9 mi., \$121,645; sand and gravel 137.7 mi., \$686,000; grade and drain, 309 mi., \$2,566,000 and bridges and grade separations 10.8 mi., \$5,773,000, or a total of 918 mi., \$16,865,000.

North Carolina. The 1933 program in North Carolina calls for the letting of contracts for 124 miles of roads and structures estimated to cost \$1,144,000,

including 7.33 miles of top soil and sand clay 48.038 miles of gravel, 36.827 miles of crushed stone, 24.324 miles of sand asphalt and 7.790 miles of concrete. Work is under way on 4125 miles of roads and structures for which contracts were let last year, but which have been carried over for completion this year at an estimated cost of \$3,213,000. The mileage included in this carry over is: Graded, 52.7; graded and top soil, 91.1; bituminous surface treated, 122; traffic bound macadam, 46.3; pre-mix asphalt, 17.2; mixed in place, 39.5; gravel, crushed stone, 31.7, and sand asphalt, 12.

Tennessee. The Tennessee Legislature, which met in January, subsequently adjourned until February 27 to give the Finance Ways and Means Committee an opportunity to compile appropriation bill for the next biennium, officials of the Department of Highways and Public Works are of the opinion that for the next two years its program will be confined chiefly to maintenance.

Texas. Diversion of one cent of the four cents a gallon sales tax on gasoline to pay the road bond indebtedness of counties and districts incurred in aiding the construction of State highways, will, it is estimated, reduce the annual income of the Texas State Highway Department \$6,000,000 to \$7,000,000. The same Act also stopped participation of counties in the construction of State highways except for projects under construction. Active construction under way on January 1 included about 1100 miles of grading and structures to cost close to \$8,000,000; 473 miles of gravel or similar type to cost \$2,785,000; 445 miles of asphalt surface to cost \$3,418,000; 566 miles of concrete and brick, to cost \$10,969,000, and large bridges and grade separations to cost \$2,327,000.

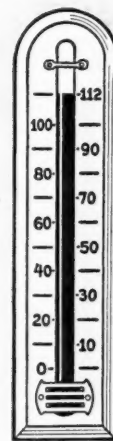
Stone Walled Drive Along Route 70, Lake Killarney, Mo.



ACTION

in the MOJAVE DESERT

◆ Three Allis-Chalmers Model "Ls" fighting blistering heat ... abrasive sand ... cutting dust ... supplied the ACTION in building the Mecca to Blythe highway in the lower Mojave Desert. Under these extreme conditions Allis-Chalmers tractors continue to move more yardage at lower cost.



Write for
the Action
Magazine



ALLIS-CHALMERS

TRACTOR DIVISION—MILWAUKEE, U. S. A.

TRACK TYPE TRACTORS • ELEVATING GRADERS • TRACK TYPE WAGONS
POWER CONTROLLED GRADERS • MOTOR PATROL GRADERS • POWER UNITS
WAGON TRACKS • HAND CONTROLLED GRADERS • WHEEL TYPE TRACTORS

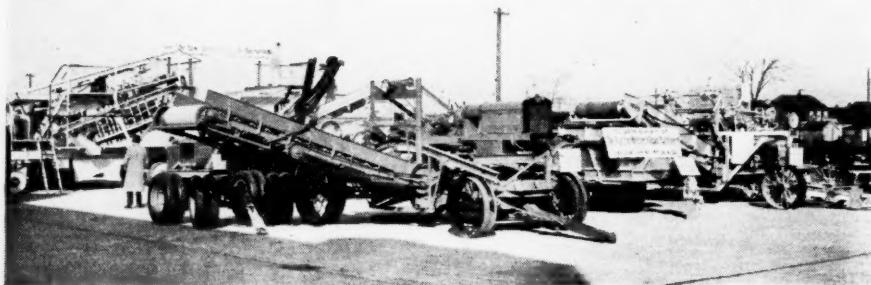
GOOD ROADS AND MOTOR TRANSPORT

1933 Line Austin-Western Road Machinery

The 1933 line of the Austin-Western Road Machinery Company, Chicago, is declared to be the finest ever put on the market by this well known firm. Important features of late model A-W units are major power developments and other improvements designed for greater strength, increased flexibility and better control. All Austin Blade Graders, now made in 12-, 10- and 8-foot sizes, are similar in general appearance with exclusive box type frame, providing unusual strength and permitting maximum capacity output. New hydraulic controlled Austin Motor Graders and Austin Contractors Special Elevating Graders are likewise a decided advance over previous models. The new Austin Shovel, convertible into crane, back-filler, clam shell and dragline; the Bituminous Distributor, and a complete line of three-wheeled, tandem and pup-sized rollers have all undergone improvements, while a recent addition to the line is a new Austin Truck Plow. Outstanding Western products are the new No. 6 Elevating Grader with shouldering attachment and the large capacity portable, washing, crushing and screening plants. These, combined with the popular Crawler Dump Wagons, new Power Wheelers and other small tools constitute a complete line of road machinery.

At the recent Detroit Road Show, the Austin-Western Road Machinery Company, Chicago, displayed 10 carloads of equipment—one of the largest exhibits. The indoor display included several grader types, 1000-gallon distributor mounted on a trailer, a 2-yard Power Wheeler and a "35" Cletrac tractor. In the outdoor exhibit, a No. 100 Western Crushing Plant operated continuously,

Outdoor Exhibit at Detroit Road Show



and there was a Western Washing Plant, an Austin Badger Shovel, a 48-inch Contractor's Special Elevating Grader, a No. 6 Elevating Grader, and an 8-10-yard Crawler Dump Wagon with spring wind-up.

Regulation of Large Motor Carriers

According to the Atlanta Constitution, two decisions recently handed down by the Supreme Court of Georgia "will go a long way toward clarifying the controversy before the Legislature over the regulation of large motor carriers used for hire." In one case the Court held that the State not only has complete authority to regulate such carriers, but has the authority also to bar them from the State roads.

In another ruling—in the case of Ader vs. the City of Albany—the Court holds that cities and towns have no authority to adopt ordinances regulating carriers for hire, even when such towns and cities endeavor to create a special fund from taxes received to be used solely for the maintenance and repair of city streets damaged and destroyed by these carriers. The Albany ordinance was held to be in conflict with the Motor Carriers' Act of 1931, which was passed by the General Assembly in order that the State, in the interpretation of the Court, "should reserve for itself the exclusive right to tax the business in question here."

This ruling, according to the Constitution, makes it imperative that the State Legislature, through authority granted it in the decision, enact needed measures for the protection of both citizens and State, and to remedy conditions in towns and cities which the towns and cities cannot remedy for themselves.

Pennsylvania Builds Emergency Roads

During the past fifteen months, as a relief measure, the State of Pennsylvania has kept 50,000 men employed, it is estimated, surfacing farm-to-market roads and 4900 miles have been completed at a cost of \$6,000 per mile. These are said to be well constructed, all-weather roads paved with rock native to localities in which the roads were built. Men engaged for construction were placed on roads within easy reach of their homes, being given expert supervision and necessary machinery. Such work has been carried on continuously in 66 counties of the State when weather permitted, the men being called to work not more than 30 hours per week at wages current in their own localities. It is estimated that upward of 500,000 people have been given relief by means of this program, with a profit to the State as well as to the people. Money for the roads was supplied from the road fund and from funds advanced by the Reconstruction Finance Corporation.

While these feeders have been built, the main system of highways has been developed, also, with the idea of giving as much work as possible. The market roads built during the emergency are good for many years, it is claimed, and are being treated as rapidly as possible. 35,000,000 gallons of bituminous materials having been used last year. Where necessary, the roads have been relocated, curves and grades reduced and warning and other signals installed. Incidentally, much of the most beautiful scenery in the state has been opened to the tourist. Also, in improving its roads, Pennsylvania has given work to several thousand men who would have been dependent on charity.

3-Way Crawler Dump Wagons

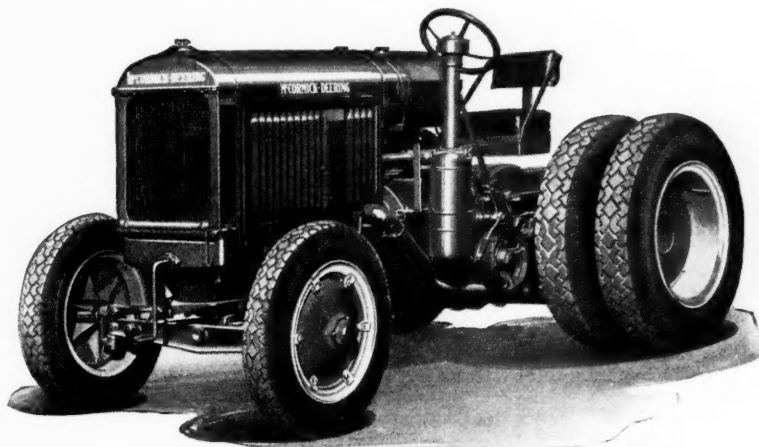
The addition of 3-way crawler dump wagons of 7-10½ cubic yards capacity has been announced by the Trackson Company, Milwaukee, Wis. These wagons are designed to meet a demand for all-purpose crawler-equipped units for dirt hauling. The company at present manufactures two sizes of bottom dump wagons, one size 3-way dump wagon and two sizes of crawler wheels. Outstanding features of the new units are: Fabricated body from ¼-inch high carbon steel; double flanged gate tops; side gates topped with buffers encased in steel; improved dumping mechanism, etc.

Now 5 Models to Choose from in the McCormick-Deering Line of Industrial Tractors

WHEEL-TYPE TRACTORS
Model 20 Model 30
Model I-30

TRACTRACTORS
Model T-20 Model T-40

Also POWER UNITS
Model 200 Model 300
Model P-30



The McCormick-Deering Model 30 Industrial Tractor

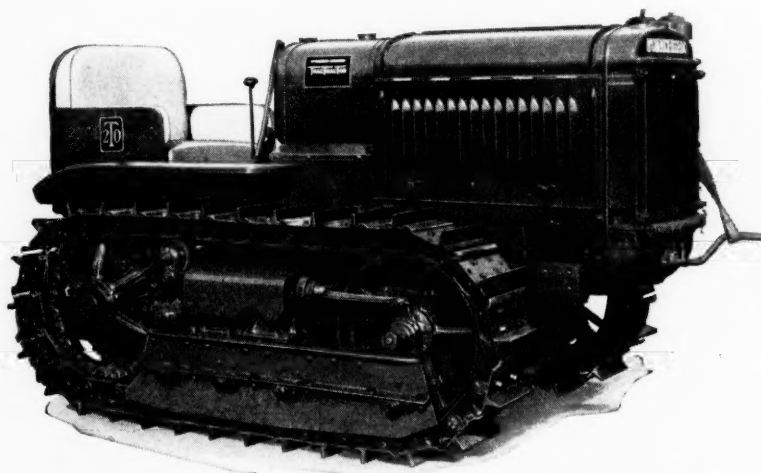
MORE than a quarter-century ago International Harvester began to pioneer the new idea of tractor power. Today the McCormick-Deering line of tractors for industrial work includes five basic models designed and built to handle efficiently every need for mobile, industrial power, working either alone or as the power for a wide range of special equipment. In addition, there are three

power units to meet demands for stationary power and special installations.

Investigate this complete line of McCormick-Deering Industrial Power and see what it offers in economy, efficiency, and performance. The nearest Company-owned branch, or McCormick-Deering distributor or dealer, will give you information covering specifications, power output, and other facts.

INTERNATIONAL HARVESTER COMPANY OF AMERICA

606 So. Michigan Ave. (Incorporated) Chicago, Illinois



The McCormick-Deering TracTracTor is by far the most accessible crawler tractor on the market. Steering clutches can be inspected, adjusted, or replaced through rear cover plates without disturbing track, track frame, or driving sprocket. Other parts are equally accessible, making for surprisingly low maintenance cost. Special dust seals guard every shaft and bearing against the entrance of dirt and other abrasive materials.

The TracTracTor is built in two sizes—the Model T-20, shown at the left, and the Model T-40, a 6-cylinder, 5-speed unit. Both are powerful and efficient and provide cost-reducing power for a great variety of jobs.

MCCORMICK-DEERING INDUSTRIAL POWER

Gas Tax Diversion

Federal highway aid for States will soon be difficult to justify if the States divert gas tax receipts to other than highway purposes, Renick W. Dunlap, Acting Secretary of Agriculture, declares. Aware of a growing tendency in many States to increase gasoline and motor vehicle taxes, and to divert an increasing share of the receipts to non-road purposes, Mr. Dunlap says the public should bear in mind the basic purpose of Federal aid for highways. He points out that:

"During the past eight years the Federal Government has distributed nearly a billion dollars to the States for road-building. It has been my official duty during these eight years to sign the orders resulting in the distribution of these funds. Throughout it was my understanding—and still is—that all this Federal money was appropriated in order to promote commerce and the exchange of goods, to encourage inter-state travel, both for business and for pleasure, and to stimulate necessary highway extension and improvement in the several States.

"But now many of the State Legislatures have before them plans to increase gas and motor vehicle taxes, to restrict highway travel, and to divert funds collected from motor vehicle users to non-road purposes. These plans conflict with the basic purposes of Federal aid for highways.

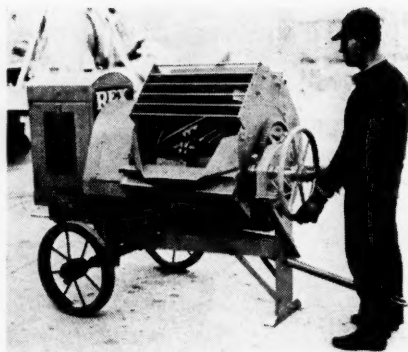
"Specifically, the mere fact that any State takes funds collected from motor vehicle users and spends them for general administration or any purpose other than highways—this argues strongly that Federal assistance for road-building is not needed in that State.

"Excessive taxation on gasoline, oil, vehicle licenses, etc., tends to limit and reduce the use of the highways by making such use unduly expensive. This is directly opposed to the basic theory behind Federal highway aid.

"If we believe that the highways are today a vital national asset, necessary to business as well as to social progress, we ought to encourage, rather than discourage, their use.

"One of the purposes of Federal aid has been to encourage the construction of the more permanent through highways connecting important centers and traversing the Nation in as nearly a straight line as possible. These are the highways which the larger busses and trucks use. Most of these highways are capable of sustaining heavy traffic without injury. These highways were never intended for pleasure alone. Trucks using the highways ought to pay their full share of the cost of building and maintaining the highways, but it is not sensible to restrict efficient use of the highways by excessive taxation on any motor vehicle.

"Federal highway aid to the States ought to be continued, in my judgment, but it will soon be difficult to justify if highway receipts continue to be diverted by the States to other than highway purposes. Levied with moderation, the gas tax is perhaps the best illustration of a tax levied according to ability to pay, benefits received, and convenience of collection. This is no time to ride a willing horse to death."



REX Cold Patch Mixer

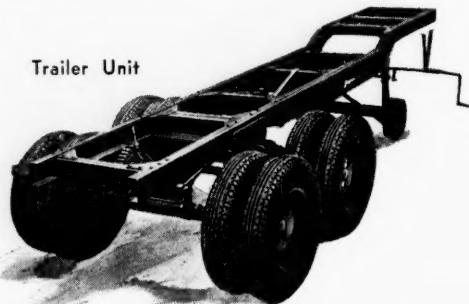
The Chain Belt Company, Milwaukee, Wis., which introduced its Cold Patch Mixer in 1932, recently announced an improved model for handling either cut-back or emulsified asphalt. This new unit, known as the REX Cold Patch Mixer, is now in use in many states. It is of the REX Pug Mill design, equipped with factory built-in heater which is an integral part of the machine, but quickly detachable, and is claimed to be able to mix a batch of emulsified asphalt in 20 seconds, and cut-back asphalt in 45 seconds. The machine has a capacity of 4 to 6 cubic feet of mixed material, depending upon the type of asphalt and aggregate used, and is equipped with an easy dump hand wheel.

Extend Time for Relief Work

Under the terms of a time extension bill passed by Congress, Southern State highway departments will have until January 1, 1934, to complete relief road construction programs. The bill was in the form of a rider on the agricultural appropriation bill.

Kingham Tandem Axle Trailer

As an addition to its line of trailers, the Kingham Trailer Company, Louisville, Ky., announces a Tandem Axle Trailer particularly adopted to those sections of the country where axle load is limited by legislation. Through the additional axle and tires furnished, this new trailer is designed to carry an increased payload and to distribute it over more road surface. The axle unit proper



Trailer Unit

General Motors Medium-Duty Trucks

With the addition of two new truck models, the General Motors Truck Company, Pontiac, Mich., announces it has rounded out its line in the medium-duty field. Introduction of these new models, the T-33 and the T-43, follows closely upon that of new GMC models in the heavy-and light-duty fields. In design and basic engineering the two models are identical, differing only in dimensions and mechanical specifications, the T-33 being in the 3-ton range and the T-43 in the 4-ton range.

They are equipped with the new "257" engine, developing 76 horsepower at 2500 r.p.m. This engine is simple in design and of sturdy construction, suspended at three points in rubber mountings. It is of valve-in-head construction, down-draft carburetion, statically and dynamically balanced crankshaft, with counterweights and harmonic balancer. Full pressure lubrication is supplied to all main and connecting bearing rods and to the valve rocker shaft.

The chassis frame is exceptionally sturdy, the channel section side members being 8 inches deep, 3 inches wide and 1/4-inch thick, while the cross members are generously gusseted. Four-speed transmission is of the heavy-duty type, and springs are silico-manganese steel with stationary front and drop-forged rear shackles, an auxiliary rear spring being provided above the main spring to counteract sideways. Fuel tank capacity is 25 gallons, oil capacity 7 1/2 quarts, and water capacity 20 quarts. Pay load on the T-33 ranges from 5585 to 6550 pounds, depending on body length, and on the T-43 from 6565 to 9005 pounds.

is of Timken design, using flat end springs on tubular axles, with rubber mounted radius rods held rigidly in place to ball and socket joints, thus increasing flexibility in operation. Frame and front end of the trailer are the same as other Kingham Universal trailers, and are made in either the standard 6-inch drop frame, or with a frame having a 14-inch drop. Hydraulic brakes with BK Booster are regular equipment, but

Westinghouse Air Brakes may be supplied when required. The unit is offered in three different sizes and may be furnished with or without bodies. In addition to the Kingham Universal Tandem Axle Trailer described above, the company makes a full line of trailers for all kinds of hauling, as well as power winches, bodies for trucks or trailers, and Kingham Woolcott convertible tops.

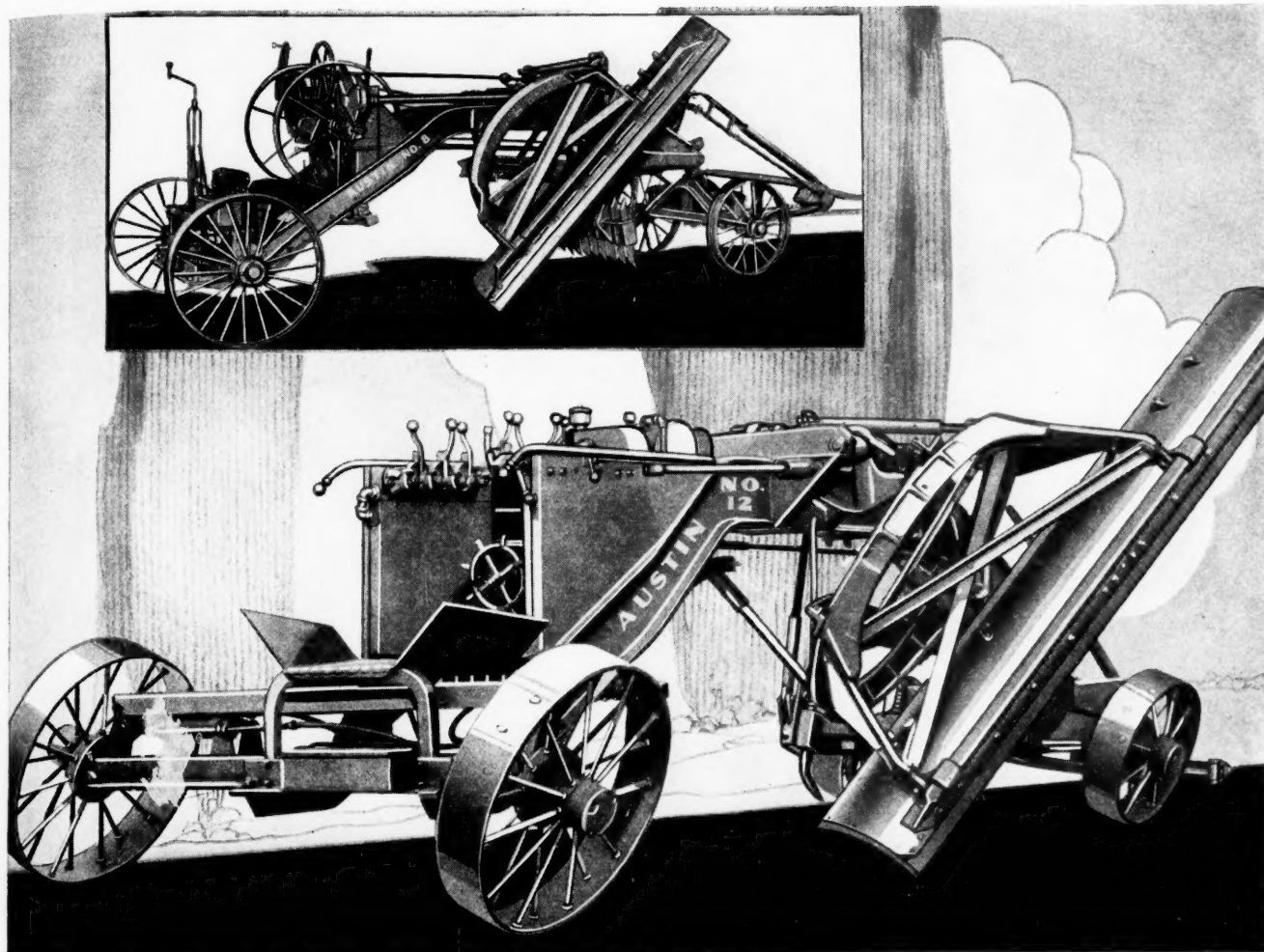
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New Austin Blade Graders ... with HYDRAULIC Controls

UNDER every operating condition, from the deepest cuts of new construction to the light, precise work of road maintenance, greater standards of performance are set by the new 1933 Austin Road Graders offering HYDRAULIC CONTROL as optional equipment.

Better work because of smooth, accurate blade and scarifier adjustment...faster work because of instant response to controls—combine to mean lower cost per job or more accomplished per dollar of appropriation.

The new Austin No. 12 and No. 10 Road Graders carry to a still higher point the

standards of reserve strength, extra capacity and extreme flexibility so well proven in the Austin No. 101 which they succeed. The Austin No. 8, patterned closely after the No. 12, offers in an 8-foot blade grader, every feature of the larger machines except hydraulic control.

Complete information about these New Graders and other New 1933 Austin-Western Road Machinery is now ready. Write today!

The Austin-Western Road Machinery Co., Home office 400 North Michigan Avenue, Chicago, Illinois. Branches in principal cities.

103

**The Austin-Western
ROAD MACHINERY CO.**

ROAD ROLLERS, CRUSHING & SCREENING PLANTS, SCARIFIERS, SWEEPERS & SPRINKLERS, ROAD GRADERS, ELEVATING GRADERS, MOTOR GRADERS, PLOWS & SCRAPERS, BITUMINOUS DISTRIBUTORS, DRAGS, SHOVELS & CRANES, DUMP WAGONS, SNOW PLOWS.

IRON, STEEL AND METAL MARKET

STEEL operations during February were around 20 per cent of capacity. Iron and steel jobbers in the New York district report the volume of business was about equal to that of January, individual orders being for small tonnages. The steel price situation claims attention. Apparently some consumers are holding off until prices give more concrete evidence of stability. In districts where automobile tonnage is an important factor, sharp drops occurred, operations being steadier in the Wheeling and Birmingham districts.

There is a slightly better feeling in pig iron circles. Some foundries are filling rush orders. As a result of the hostilities in the Far East, for the time being at least, the sale of Japanese iron is not being pushed so vigorously as of late. Encouragement is to be gathered from the small stocks of pig iron in the hands of foundries.

Export trade in iron and steel products during January reached the highest level since last May, with shipments totaling 56,700 gross tons, exceeding the December shipments of 54,100 tons by more than 2500 tons, and showing a gain of 16,070 tons, or 40 per cent, over the January, 1932, exports, amounting to 40,648 tons. Japan again was our principal export market, Italy being second and Canada in third position. Imports last month dropped to 21,892 tons from the December total of 29,390 tons, and were nearly 10,000 tons, or about 30 per cent, under the January, 1932, receipts of 31,050 tons.

About 4000 tons of Dutch Pig iron arrived at Port Newark the first week in March, entering into lively competition with domestic irons. It is said that most of the material will be delivered in small lots, principally by motor trucks, to many foundries near to the port. The largest order for the imported material was placed by a maker of cast iron pipe.

Up to the middle of February, it is estimated that 160,000 tons of scrap iron and steel were purchased by Japan, Italy and Poland, or at a rate about double that of shipments in the corresponding period last year. In addition to the shipments from North Atlantic ports, these exports are moving through Baltimore, Norfolk, Jacksonville, New Orleans, Galveston and Houston, as well as from Pacific Coast ports.

Although scrap prices are low, this ex-

port buying is very helpful because some domestic steel producers have not made purchases of scrap in a long time.

On March 1 the wire plant of the American Steel & Wire Company, of Fairfield, Ala., was transferred to the Tennessee Coal, Iron & Railroad Company, which is now operating the plant as well as handling the sale of products. The two companies are subsidiaries of the United States Steel Corporation, and the action was predicted on the belief that it will result in greater efficiency in the manufacture and distribution of the products made at Birmingham for sale in Southern territory. The American Steel & Wire Company's Fairfield plant has for many years been obtaining all of its steel from the Tennessee Company's mills. For some time the steel, wire and nail mills have been operating on a good production schedule, and present prospects for a continuation of operations at about present rate are said to be good. More than 1200 men are employed in the wire mill. The original wire plant was established about 30 years ago, being subsequently acquired by the United States Steel Corporation, since which time it has been steadily enlarged and improved and is now considered one of the best equipped plants of the kind in the country. Among its products are wire nails and fencing, cotton ties and similar products extensively used in the South and the Southwest.

Various firms in the Birmingham district continue to book orders for a diversity of products for use not only in the South and Southwest, but in projects located many miles from Birmingham. The Gulf States Steel Company is to furnish about 1700 tons of reinforcing steel for use in erection of a group of eleven buildings at Fort Miley, Cal. A number of small contracts for reinforcing bars have been booked recently by the Gulf States Company, including about 100 tons for the Three-mile Creek bridge near Mobile.

The Universal Pipe Company will supply about 260 tons of four to ten-inch pipe for Fort Lewis, Wash. Birmingham firms eagerly await the award of a contract for 1400 tons of 16-inch pipe for San Francisco, bids for which were opened recently. Another contract for 10-inch pipe, totaling 400 tons, for delivery to the West Coast, is pending.

The copper market is quiet. Prices sagged in the latter part of February and the first of March. In January exports from this country totaled under

10,000 tons as compared with 13,000 tons exported in the first month of last year. January imports totaled about 6500 tons, as compared with 38,700 tons in January 1932.

The world's supply of tin declined more than 1000 tons during February, according to advices from London, the total supply being estimated at slightly more than 43,000 tons. The February decline follows a drop of 1500 tons during the first month of the year.

Zinc ore prices in the Tri-State District at the first of the month were steady at \$15 and \$16 a ton, the market having developed a firm tone. Lead prices also were steady at \$32 and \$32.50 a ton.

World zinc production in January amounted to 78,700 tons, as compared with 73,800 tons in December, and 80,500 tons in January 1932. Production in this country in January was 19,800 tons, as compared with 18,400 tons in December.

Rustless Iron Wins Suit

The Rustless Iron Corporation of America, Baltimore, announces that Judge William C. Coleman of the United States District Court has rendered a decision favoring it in a patent-infringement suit, brought in 1929 by the Electro-Metallurgical Company, a subsidiary of the Union Carbide & Carbon Corporation and the American Stainless Steel Company of Pittsburgh.

The decision will, it is declared, "have a far reaching effect on the entire steel industry, establishing as it does the right of an independent unit to operate its own exclusive processes and to manufacture stainless steel, rustless iron and essentially all chromium and chromium-nickel alloys under its own patents and those of the Chemical Foundation, Inc., of which it is a licensee."

The Rustless Iron Corporation operates an electric furnace plant in Baltimore devoted to the production of rustless irons, which are alloys of iron with chromium and chromium-nickel, used extensively by automobile manufacturers, a number of chemical and oil companies, process industries and others. Organized in 1926, the company has expanded its business until it is one of the world's largest and most important producers of chromium, chromium-nickel and other alloys.

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AMERICAN STEEL SHEETS

FOR ALL KNOWN USES

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In Industry and Construction

SHEET METALS of UTILITY and SERVICE, beginning in the metallurgical laboratory and ending with unqualified approval by the ultimate user—have made AMERICAN products a most reliable and satisfactory source of supply. This record for excellence is the user's best assurance also of continued highest standards in sheet steel manufacture in time to come.

KEYSTONE Copper Steel—the original copper steel alloy, is unexcelled for uses requiring the maximum of endurance and rust-resistance. Send for Weight Cards and copy of our interesting "Anti-Corrosive Metal" booklet.

Write for full information on AMERICAN Black and Galvanized Sheets, Formed Roofing and Siding Products, Sheets for Special Purposes, Tin and Terne Plates, Black Plate, etc. This Company also produces U S S STAINLESS and Heat Resisting Steel Sheets and Light Plates.



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THE LORAIN STEEL COMPANY
TENNESSEE COAL, IRON & R.R. COMPANY
UNIVERSAL ATLAS CEMENT COMPANY
Export Distributors—United States Steel Products Company, New York, N. Y.

MARCH NINETEEN THIRTY-THREE

EQUIPMENT

NEW AND IMPROVED

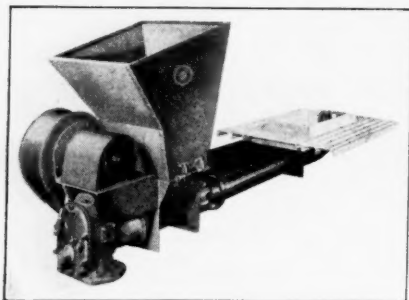
Cushion Wheel for Rail Coaches

Engineers of the Clark Equipment Company of Battle Creek, Mich., and The B. F. Goodrich Company, Akron, Ohio, have developed a new type of cushion wheel now used on the "Auto-Tram" designed by the Clark company. As described in semi-technical detail by C. W. Bedford, Tire Development Engineer, The B. F. Goodrich Company, AutoTram Cushion Wheels employ multiple soft rubber inserts, adjacent to the outer circumference installed in a pre-loaded condition and carry the load, as well as traction or braking effort, entirely by shear distortion. Under shear loading of less than 10 pounds per square inch, these wheels are said to easily support a load of 4200 pounds per wheel and may be designed for heavier loads.

Automatic Underfeed Screw Stoker

The Link-Belt Company, Chicago, announces the Link-Belt Automatic Underfeed Screw Stoker, an outgrowth of the Link-Belt variable speed stoker transmission which has been manufactured by this company for a number of years. The new stoker at present is made in a number of sizes suitable for heating plants and smaller steam plants—boiler capacities from 10 to 250 B. H. P. Important features of design include a special motor mounting, permitting direct connection to the forced draft fan and providing an accessible compact assembly; variable speed transmission regulating coal feed, provided with safety shearing pin for overload protection; chrome steel screw conveyor; finished castings of heavy grey iron; automatic electric controls and easy accessibility of working parts.

For Heating and Smaller Steam Plants



Crawler Shovel and Crane Equipment

The Universal Crane Company, Lorain, Ohio, announces a new line of crawler shovel and crane equipment ranging from $\frac{3}{4}$ - $\frac{1}{2}$ - $\frac{3}{8}$ yard, known as the Lorain 40 and 30. Incorporating construction features of the Lorain line produced by its parent company, The Thew Shovel Company, Universal now offers a complete line of machines of Center Drive design throughout, plus a new development — Balanced Design — which is claimed to develop great capacities per pound of weight. The working weight of the Lorain 40 as a $\frac{3}{4}$ -yard shovel is approximately 30,000 pounds and of the Lorain 30 as a $\frac{1}{2}$ -yard shovel, about 23,000 pounds. Both are built to the Center Drive principle of power transmission in crawler, turntable and shovel boom, and great strength is obtained by the use of alloy steels of nickel, molybdenum, chromium, and manganese. The units are powered by 6-cylinder Waukesha motors, that on the Lorain 40 developing 52 horsepower and on the Lorain 30, 43 horsepower.

Thermostatically Protected Motors

The Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., announces a completely self-protecting motor which cannot burn out and yet carries overloads just as long as the motor itself is not in danger. A small disc type thermostat mounted on the motor frame opens the circuit when the motor gets too hot and connects it again after the motor has cooled. The motor is said to be ideally suited for automatically controlled devices, such as refrigerators, oil burners, air conditioners, etc. In addition to the thermostat, the motors have been designed for quietness, efficiency and rugged reliability.

All Stainless Tape Rule

The Lufkin Rule Company, Saginaw, Mich., as a companion to its popular "Crescent" Tape-Rule No. 696, has introduced the "All Stainless Crescent" No. S-696, in which stainless steel has not only been used for the graduated blade and its sliding hook, but also for the base, thus making it rust-proof and non-corrosive.

Twin-Six Mult-Au-Matic

The Bullard Company, Bridgeport, Conn., announces Type "F" Twin-Six Mult-Au-Matic — a multiple spindle chucking machine. The capacity of the machine places it in the class of 7-inch work where boring, turning, facing, drilling and reaming are requirements, and as this size work runs to higher speeds the machine may be ordered in either high or low speed ranges. An automatic chucking mechanism is incorporated to be used for special chucks or fixtures and the machine is offered with a variety of standard tool heads.

New Type Gates

To meet the changing demands of industry and the new requirements of airports for fence protection, the Cyclone Fence Company, Waukegan, Ill., has developed a number of new types of gates. The usual type of gate, the swing gate, has its limitations where excessive openings free from obstructions are required.

The property protection problem of the West Virginia Rail Company at Huntington, W. Va., was solved by the installation some time ago of a wire "chain link" type of fence. The 96-inch high fence was crowned with three strands of barbed wire.

A gate of unusual size and design was necessary to protect the railroad-track entrance covering a space 142 feet wide. A special track was constructed and a special truck with ball bearing wheels was prepared and built into the gate to carry it. The equipment was worked out in such detail by the Cyclone Fence Company engineers that the gate can be opened easily by one man although its two sections weigh about 3000 pounds each.

Construction Features of a 142-Foot Wide Rolling Gate



INCREASES PAYLOADS. . . . BECAUSE IT'S

FASTER!!

The Williams power-arm combination of lever and block-and-tackle reduces time—on any class of re-handling work—by developing high digging power with less cable overhaul. Straight cable lead reduces cable wear and replacements.

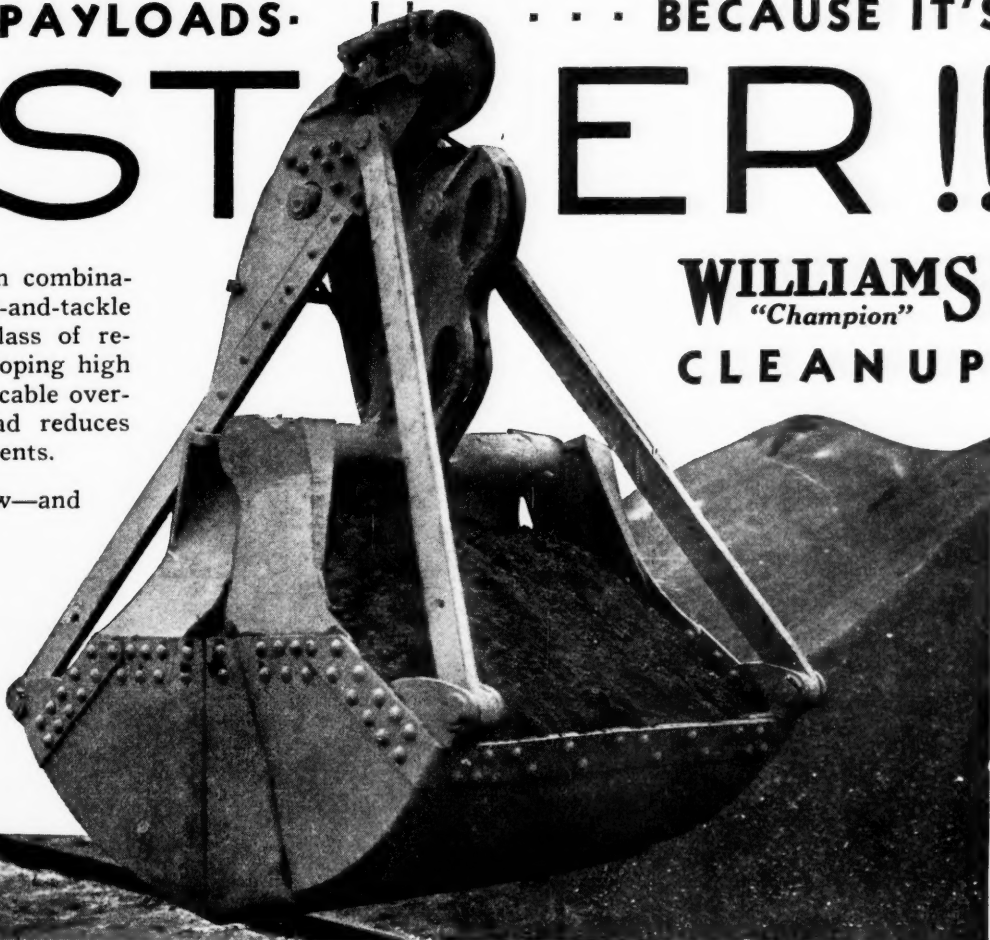
Put it on your crane now—and save money per job.

Write for descriptive bulletin

THE WELLMAN ENGINEERING CO.

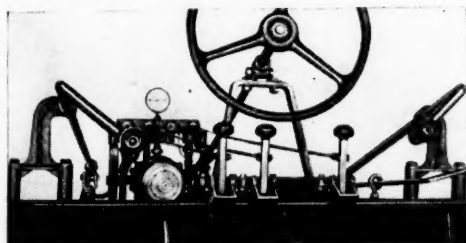
7003 Central Ave.
CLEVELAND, OHIO

Birmingham New York Chicago
Detroit Pittsburgh Mexico City



WILLIAMS
"Champion"
CLEANUP

GALION Motor Patrol Graders



with **HYDRAULIC**
OPERATION

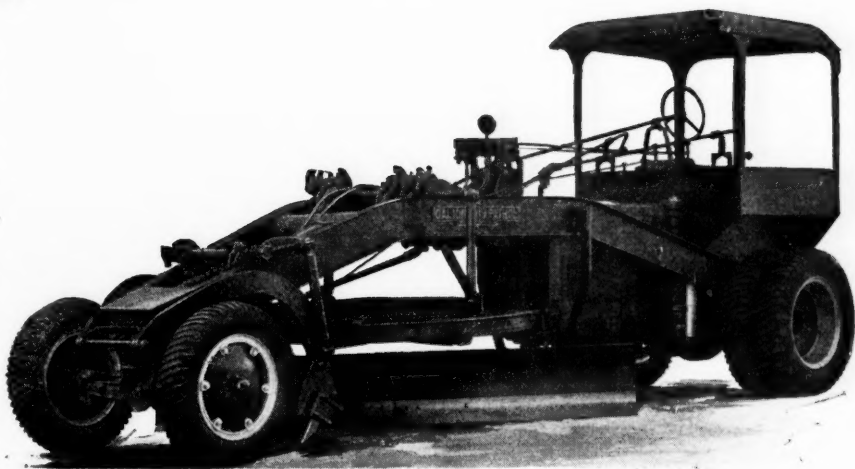
YEARS of experience in designing and building Motor Graders enable Galion to set new high standards of performance and economy in developing just the right type of Grader for the future.

Galion's latest achievement—Hydraulic Operated Motor Patrol Graders—establishes an entirely new precedent in Grader design. Hydraulic Power takes all the hard work out of grader operation.

It provides a distinct advantage over Manual Operated Graders—besides adding to the ease of operation, Hydraulic Power enables all adjustments of the moldboard and scarifier to be made instantly and accurately by three easy-moving levers, conveniently located.

These Graders can be supplied with either McCormick-Deering, Cletrac or Case power units.

Let us send you complete data covering this latest Galion development. Write us today.



Galion Motor Patrol Grader equipped with Hydraulic Control, McCormick-Deering Power and six pneumatic tires.

The Galion Iron Works & Mfg. Co.

GALION . . . OHIO

MARCH NINETEEN THIRTY-THREE

37

INDUSTRIAL NEWS

Institute of Southern Industries

Following preparatory meetings in Alabama, Georgia, Florida, Louisiana and North Carolina, representatives from these states met in Birmingham on February 11 and organized the "Institute of Southern Industries" for the announced purpose of doing "its utmost to get our workers back on their jobs" and to encourage the adoption of Federal legislation for the aid of agriculture and manufacturing. Temporary headquarters of the Institute are at 1406 Barnett National Bank Building, Jacksonville, Fla., and its temporary officers include: President and treasurer—Reuben B. Robertson, president, The Champion Fibre Company, Canton, N. C.; vice-president—L. E. Geohegan, vice president, Gulf States Steel Company, Birmingham, Ala.; executive vice president—William L. Wilson, vice president at large, Florida State Chamber of Commerce, Jacksonville; secretary—Miss J. M. Sampley, Jacksonville.

Paper Men to Savannah

Leading paper manufacturers of the United States and Canada have accepted invitations to attend the annual convention of the Georgia Forestry Association to be held in Savannah, Ga., on May 1 and 2, according to Dr. Charles H. Herty, director of a paper pulp experiment laboratory at Savannah. Dr. Herty recently addressed the Technical

Association of the paper and pulp industry in New York City on "White Paper From Slash Pine."

Manufacturers' Mart Open in Memphis

Announcing its opening in Memphis, Tenn., the Manufacturers' Mart, 110-12 N. Court avenue, states that in addition to displaying lines of merchandise offered by its patrons, it also acts as sales agent. Its facilities are open to retail furniture dealers, of whom there are said to be about 5000 in the Mid-South. Office space on the first floor of the mart is provided for manufacturers' special representatives.

National Foreign Trade Convention

The 20th National Foreign Trade Convention, sponsored by the National Foreign Trade Council, New York City, will be held at Hotel William Penn, Pittsburgh, Pa., April 26-27. "To restore American faith in the fundamental necessity of our foreign trade—that is the essential purpose of the Pittsburgh convention," declares Eugene P. Thomas, president, and Gardner L. Harding, secretary National Foreign Trade Council. The convention will be called to order by James A. Farrell, chairman, National Foreign Trade Council.

Hutchinson Heads Edge Moor Iron Company

Succeeding William F. Sellers, retired, Ely C. Hutchinson assumed the presidency of

Edge Moor Iron Company. Edge Moor, Del., on February 1. Mr. Hutchinson became editor-in-chief of Power three years ago and is well known to steam engineering interests, having had extensive experience in sales, engineering and manufacture. Products of the Edge Moor company include boilers, tanks, etc.

Freeport Texas Co.

E. L. Norton has been elected chairman of the board and Langbourne M. Williams, Jr., president of the Freeport Texas Company. Other officers were reelected. The directors declared a quarterly dividend of \$1.50 on the new 6 per cent cumulative convertible preferred stock, payable May 1 to stock of record April 14.

Georgia Water Resources

A special committee of the Georgia Department of Forestry and Geological Development, Atlanta, appointed to investigate the cost of a survey of the water resources of Georgia has recommended that a state appropriation of \$5000 be requested by the Department for 1934 and a similar sum for 1935, "so that the proper development of Georgia may be speeded up through general industrial use of its waters." The special committee included J. M. Mallory and Mrs. M. E. Judd, members of the commission, and Bonnell Stone, Development Agent.

Tenth Annual Coal Convention

The tenth annual convention of the Coal Division of the American Mining Congress will be held at Hotel William Penn, Pittsburgh, Pa., on May 8. This meeting is expected to bring together operating heads of important coal companies in the country.



Mascot Chatts

ASPHALTIC ROADWAY GRAVEL

ROOFING GRAVEL CRUSHED STONE

ASPHALT FILLER DUST

American Limestone Company
Knoxville Tennessee

CRUSHED LIMESTONE Best for All Purposes

We manufacture all sizes of stone suitable for all classes of road building and concrete work where only a high-grade limestone is required.

Quarries opened up in 1912.

Capacity 8000 tons daily.

Four Quarries

Blue Ridge, Va. Pembroke, Va. Pounding Mill, Va.
Boxley, Greenville County, Va.

W. W. BOXLEY & COMPANY

Room 711, Boxley Building, ROANOKE, VA.

The Best Highway Guard Available

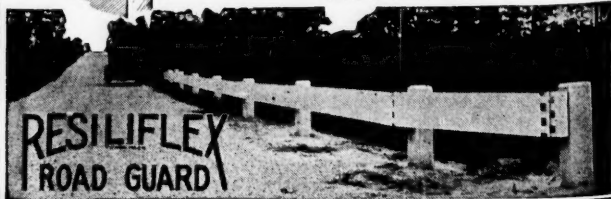


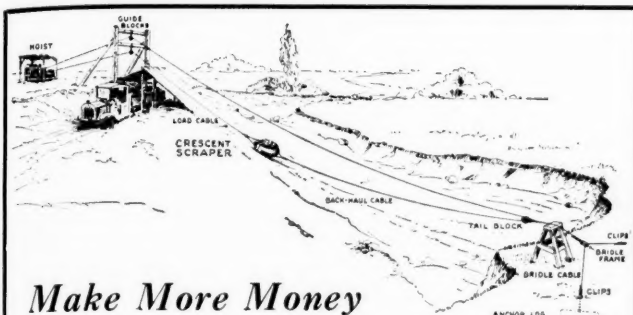
The rail is of galvanized plates, ends interlocked and supported under heavy tension by strong steel springs.

The broad, smooth face tends to absorb shocks from impacts and turn traffic back into roadway. The Resiliflex Road Guard prevents serious accidents, safeguards lives and protects vehicles from damage.

Write for circular.

The National Traffic Guard Co.
215 Moreland Ave., N. E.
ATLANTA, GA.

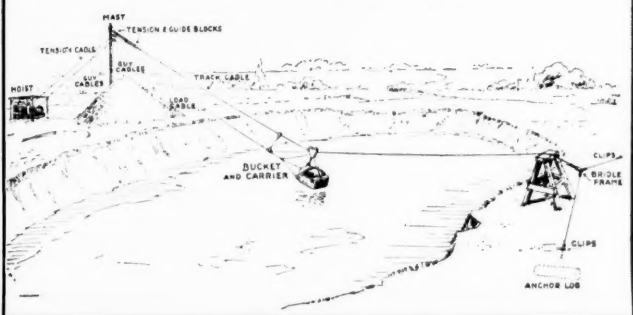




Make More Money Moving Dirt and Gravel

Crescent Drag Scraper Outfits and Sauerman Cableway Excavators are low cost machines designed to handle a maximum yardage of earth with a minimum application of power. If you are planning to enter the sand and gravel business or start any new excavating work, write for the Sauerman Catalog No. 16. It will prove valuable to you.

SAUERMAN BROS., Inc.
468 S. Clinton St., Chicago, Ill.



BUFFALO-SPRINGFIELD'S complete range of models in both three-wheel and tandem rollers permits the purchaser to select a machine properly powered, designed, and speeded for his work.

*Full details will be
furnished on request.*

THE BUFFALO-SPRINGFIELD ROLLER CO.
SPRINGFIELD, OHIO



Sound Highway Policy

● In 1931, the State Highway Department of Illinois initiated the practice of resurfacing failing pavements with brick.

Last year, Indiana was added to the list of states employing this method of salvage and improvement. Ohio has resurfaced with brick for years.

Resurfacing with brick is sound highway policy. It converts failures and incipient failures into the highest type pavement with its abnormally low upkeep.

When you resurface with brick, you fully salvage the value in an old road. It becomes a base, protected from further weather damage and traffic wear by the brick top. The subgrade remains undisturbed. You get a modern pavement, far better constructed than many of the brick pavements which are now giving upwards of thirty years of service at negligible upkeep costs.

Brick resurface work may be carried out using various types of pavement for the base. We shall be glad to furnish information to those who desire it. Simply address National Paving Brick Association, 1245 National Press Building, Washington, D. C.

**RESURFACE
with BRICK**

TRADE LITERATURE

Plastic Masonry Mortar.—The Glencoe Lime & Cement Company, St. Louis, Mo., has issued Bulletin No. 2, devoted to a new masonry mortar, Cobbsment, developed by that company. In the development of this product, the company has endeavored to produce a "leakless masonry," with the proper qualities of workability, bond strength, low shrinkage and compressive strength.

Hercules Road Rollers.—The Hercules Company, Marion, Ohio, has issued a folder briefly describing Hercules Road Rollers and illustrating their applications. These machines are "designed and built to operate profitably under today's conditions" and are intended to meet an insistent demand for speed and flexibility.

Motor Reduction Units.—Bulletin 1164, issued by the Allis-Chalmers Manufacturing Company, Milwaukee, Wis., is devoted to Allis-Chalmers Motor Reduction Units—compact, self-contained speed reducers. Essential features of design and construction are presented, together with a table on ratings and speeds with 1750 r.p.m. motor, for both integral and exible type reducers.

Vibrating Screens.—The Philadelphia branch of the Link-Belt Company, Chicago, recently issued catalog No. 1362 devoted to Vibrating Screens, presenting sizes and types, dimensions, installation views, etc. Both Unbalanced-Pulley Drive and Heavy-Duty Positive Drive type screens are covered, for the careful screening of crushed stone, coke, clay, coal, fertilizer, ores, gravel, cement and similar materials.

Westinghouse Flexarc Welders.—The Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., has issued a publication describing its new Flexarc Welders, their applications and distinctive features. They are designed especially to handle current range from 90 to 375 amperes, are available with a-c. or d-c. drives, and are equipped with the Westinghouse nonsurge welding circuit for use with bare or coated electrodes.

Universal Crushers.—The Universal Crusher Company, Cedar Rapids, Iowa, has issued catalogue No. 133, devoted to "a line of stone and gravel crushing equipment backed by 25 years of successful performance." Universal products include: Force feed crushers, crushing rolls, elevators, screens, conveyors, bins, hammer pulverizers, unit and dual crushing, screening and loading plants. The line is varied and complete up to 500 tons daily capacity.

Enduro Stainless Steel.—Republic Steel Corporation, Youngstown, Ohio, has issued a brochure covering types, finishes, applications and fabrication of "Enduro—Republic's Perfected Stainless Steel." The publication presents results of collaboration with leading engineers and architects who have specified Enduro in important building construction.

Grasselli Chemicals.—The Grasselli Chemical Co., Cleveland, Ohio, has issued a new Chemicals booklet covering the latest listing of Grasselli products, some of which have not appeared in previous issues.

Victor Diesel Engines.—The Power Manufacturing Company, Marion, Ohio, subsidiary of Osgood Co., has issued Bulletin P. 3206, devoted to Victor Horizontal Diesel Engines, designed to meet the power problems of industry and to supply dependable, economical and long-life performance. The company is also distributing a booklet on the Victor Vertical Diesel Engine, which has a long record of successful and economical operation in many industrial applications.

Electric Weld Drive Pipe.—Under the caption of "The Ideal Pipe for Water Wells," the Republic Steel Corporation, Youngstown, Ohio, is distributing a folder devoted to Republic Electric Weld Drive Pipe and Casing. The publication explains numerous advantages of this pipe which make it particularly adapted to well drilling, and presents tables and other data.

Death of John B. Lord

The death, January 21, of John B. Lord, chairman of the board of the Ayer and Lord Tie Company, Chicago, marked the passing of a prominent figure in the supply field. Born at West Newton, Mass., and educated at Wilbraham Academy in Massachusetts, he went west in 1870 and became interested in cross-tie production and timber products in Indiana, Illinois and Missouri. He organized the firm of Lord and Powell and in 1893 that of the Lord and Ayer Tie Company. This firm made its entry into the timber treating field ten years later. Mr. Lord was a leader in Chicago civic affairs and was a member of the Fourth Presbyterian Church of that city.

SAND PUMPS

A wide range of
types in sizes 4" to 15"

For belt drive and for direct
connection to motor

*Illustrated booklet on
request*

GEORGIA IRON WORKS
AUGUSTA, GA.

TARPAULINS

Waterproof and Plain - - - All Sizes
Immediate Delivery - - - Manufacturer's Prices
Canvas in every weight for every use.

ATLANTA TENT & AWNING COMPANY
Box 974 ATLANTA, GA.



WE LOOK INTO THE EARTH
By use of Diamond Core Drills

We test foundations for buildings, bridges and dams. We prospect coal and mineral lands in any part of North and South America.

PENNSYLVANIA DRILLING CO.

1201-1215 Chartiers Avenue
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DRILLING CONTRACTORS



Owen Buckets
They get
"A Mouthful at Every
Bite" and More Bites
Per Day
The OWEN BUCKET CO.
4017 BREAKWATER AVENUE, CLEVELAND, O.

SAND—GRAVEL—BRICK FILTER GRAVEL

Washed Sand and Gravel for Concrete
Roads and Buildings

Filter Gravel, all sizes—Building Bricks
FRIEND & CO., INC. River St., Petersburg, Va.

FREDERICK SNARE CORPORATION

Harbor Works

Bridges

Railroads

Railroad Terminals

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CONTRACTING ENGINEERS

Difficult and unusual foundation and engineering problems a specialty

114 Liberty Street, New York

Philadelphia, Pa.; Havana, Cuba; Lima, Peru; Cartagena, Colombia

Industrial Plants

Sugar Mills

Power Plants, Dams,

Reservoirs, Pipe Lines,

Tanks.

Power Manu-
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ON

ams,
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FOR

A Complete Organization

Quick shipments via rail,
truck, barge or scow from
Baltimore, Md., and North
East, Md.

SAND *Washed* GRAVEL *And* SLAG

*We Produce in Quantities to
Meet Your Requirements*

. with years of
experience in successfully executing large
construction contracts of various kinds is
prepared to undertake the construction of

CONCRETE, MASONRY AND EARTH
DAMS . . . DRY DOCKS . . . RIVER AND
HARBOR IMPROVEMENTS . . . WATER-
WAYS . . . DEEPENING CHANNELS . . .
DREDGING OF ALL KINDS . . .
HYDRAULIC FILLING AND ROCK
WORK . . . SEWERS . . . TUNNELS . . .
RAILROAD CONSTRUCTION

The Arundel Corporation

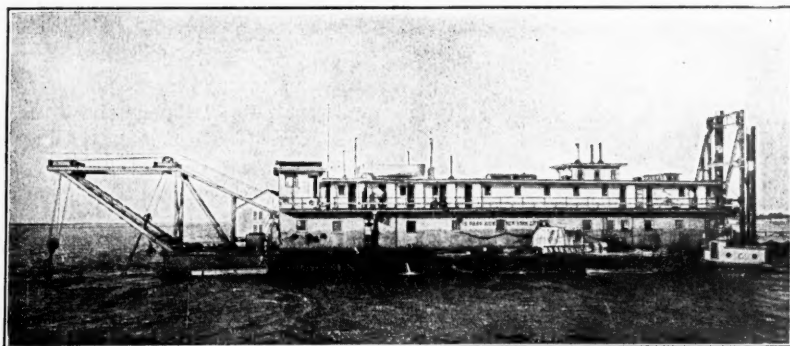
Main Office: ARUNDEL BLDG., Pier 2, Pratt Street

Baltimore Maryland

BRANCHES: NEW YORK CITY—NORFOLK, VA.—MIAMI, FLORIDA

DREDGING

FILLING, LAND RECLAMATION, CANALS, PORT WORKS
RIVER AND HARBOR IMPROVEMENTS—DEEP WATERWAYS AND SHIP CHANNELS



We are especially equipped to execute all kinds of dredging,
reclamation and port works in Southern waters.

Correspondence invited from corporate
and private interests everywhere.

Contractors to the Federal Government

ATLANTIC GULF AND PACIFIC CO.

NEW YORK: 15 Park Row

HOUSTON, TEXAS: Scanlan Building

Turning The Corner

It is the opinion of economists and industrialists that the corner has been turned in business and from now on progress should be apparent. Industry has put its house in order to a remarkable degree.

From the results learned during the depression, it is expected that production will be kept more in line with demand and by economy of operation there will be a better product, probably, at a lower price.

We are prepared to render industry every reasonable service

Baltimore Commercial Bank

GWYNN CROWTHER, President

Main Office—26 South St., Baltimore, Md.

Capital and Surplus \$1,350,000.00

Member Federal Reserve System

Electric Bond and Share Company

Two Rector Street
New York

FINANCIAL NEWS

Bank Troubles

Tremendous pressure upon banks in all parts of the country by the withdrawal of funds has caused emergency legislation in a great many states limiting the amount of withdrawals to a percentage at varying intervals. The position of the banker at the best of times in providing safety for the funds entrusted to him is one requiring unusual judgment, but even in the possession of that attribute there is nothing certain and never has been except "death and taxes."

In the present dilemma the unreasoning part of the public wants its money. It feels that it must be at its call on demand. The difficulty of meeting these demands in the light of declining values of real estate and the best class of securities and loans is apparent to every thinking individual. Whether a temporary guarantee of the National Government would stem the tide, or whether the disadvantages of such a guarantee in trying to put a blanket over the weak as well as the strong would outweigh its advantages is a question. In any event, undoubtedly the outcome will be for the benefit of the public and for the banks themselves.

There will be in the future less speculation on the part of fiduciary institutions and less desire for quick profits. On the other hand, it is grossly unfair to suspect all banks of practices similar to those on the part of some in high places as brought out before the Senate Finance Committee. Unquestionably, however, the situation is acute at the moment and requires prompt and vigorous assurance of safeguarding measures to allay the fears which have spread like prairie fire.

Bargains

It has been remarked that old-fashioned investors are taking their pick today of rare bargains in the security market. There are some left who think that American business will go on and the opportunity to lay the foundation for substantial wealth in the future is presented in the prices at which bonds and stocks of sound companies are being offered.

Hurtful Publicity

How long will Congress and President Roosevelt permit the continued publication of the loans made by the Reconstruction Finance Corporation? The appearance of these lists of borrowers has been taken as weakness on the part of those who have asked for funds, and defeats any supposed worthy purpose that may have been in the minds of those advocating publication of such lists. The practice should be stopped. It will be just as sensible to print every week or every month the list of banks borrowing from the Federal Reserve System. As a matter of fact, the requirements of the Reconstruction Finance Corporation have been vigorously criticized because they are asking, frequently, not only two for one as security in the loans they make, but three for one.

Sound Money

The new Administration is committed to sound money. The newly appointed Secretary of the Treasury, the Director of the Budget and the President himself are on record to this effect. Fears of the financial and business world may be, presumably, set at rest in regard to the danger of a course that has an alluring front, but presents difficulties of control without proven advantages.

(Continued on page 44)

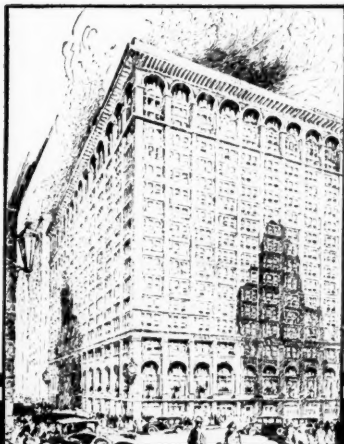
Banks like these install **YORK** **VAULTS**



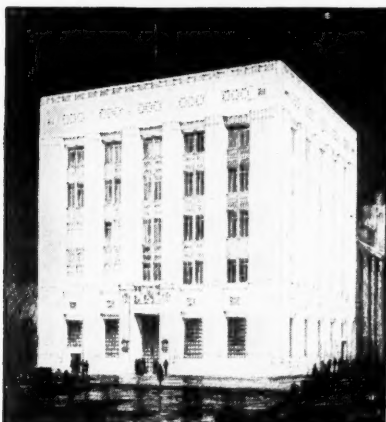
First National Bank of New York
New York City



Buenos Aires Branch of the
First National Bank of Boston



First National Bank
of Chicago



Los Angeles Branch, Federal
Reserve Bank of San Francisco



Equitable Trust Co.—now Chase
National Bank, New York City

Your bank, too, can enjoy
the same skill and experi-
ence in vault manufacture
and construction that have
made the name of **YORK**
preeminent throughout the
world. We will gladly con-
fer with you regarding the
size and type of vault your
bank requires.

YORK SAFE AND LOCK CO.

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MANUFACTURERS AND BUILDERS OF THE WORLD'S GREATEST VAULTS

NEW YORK
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HONOLULU
PARIS
HAVANA
TOKYO
SHANGHAI

FIRE AND BURGLAR PROOF SAFES AND CHESTS

(Continued from page 42)

No Risk in These Loans

The Committee on Public Relations of the Eastern Railroads declares "an inspection of the railroads' record of earnings during the years 1921 to 1931 reveals how little the government has risked in loaning them funds through the Reconstruction Finance Corporation. The amount thus borrowed, for which adequate security was given, constitutes about one per cent of the carriers' total value and is less than the Federal aid to the State highways during the past two years.

Palliatives

Hon. Alfred E. Smith refers to inflation as a "shot in the arm" and adds that this carries with it, when the effect wears off, the urge for "another shot". The National Association of Credit Men refers to the avalanche of remedies suggested as cures. It describes Technocracy as "a solution for nothing," price fixing as "a palliative that overlooks the fact that economic laws cannot well be prevented from operating by the passage of man-made statutes." All true. And business men are beginning to realize that it is not alone contraction of credit that has increased our ills, but equally to blame are higher taxes which are brought about by wasteful government expense.

Real Estate Bargains

Real estate, which is the basis of a great part of America's wealth, has gotten into an unaccountable position that amounts to almost what Grover Cleveland referred to as "inocuous desuetude". Those who own real estate wonder if they have not got a white elephant, and those who don't have no desire to buy. It has been the history, however, of previous depressions that they have been followed not only by an in-

crease in real estate values, but the rising tide of demand has more than once swept into veritable booms. Prophecy under present conditions is idle, but undeniably, there are bargains lying all around us today in the real estate market that will probably not come again in our life time.

Tax Installments

Albany, New York, has adopted a plan of issuing tax anticipation warrants in units of \$10 and upward. A tax payer may purchase these certificates at any time throughout the year. They will bear interest up to the last day for payments and can be utilized for tax settlements in May and November. They permit the accumulation of tax money in small amounts, which in some instances will earn more interest than could be earned in a savings account.

Corporations will be enabled to make profitable investment of surplus funds, while individuals and small concerns operating on a monthly budget system will find the new arrangement advantageous. From the city's standpoint, the new plan will bring in funds between the half-yearly tax dates that will be most acceptable to the municipal treasury in a period of slow collections.

A Record of Three States

Press reports show that there are only three states in the Union which did not have a bank suspension in 1932. These were Maine, Vermont and New Hampshire.

Business Failure Reduction

R. G. Dun & Co. report that failures for the last week in February were 571 as compared with 637 a year ago. For the past four weeks the number has been steadily declining in comparison with those of the preceding year. February showed a 17 per cent decline below January of 1933.

Plant Maintained Operating Expenses Cut . . . Rates Reduced

During 1932, the Engineers Public Service Company helped to maintain the financial position of its subsidiary operating properties, thus fulfilling one of the major functions of a holding company. Supervisory services were rendered, as in the past, at cost, through a company wholly owned by the operating companies themselves. Maintenance of plant, together with credits to the reserves for retirement of obsolete property which were invested in improvements to plant, took 15.7% of the year's gross earnings.

Operating expenses were reduced 17%, while notes payable and bank debt were about cut in half and consolidated cash balances increased 18%. Further reductions were effected in residential and commercial rates charged the public. Use of electricity in the homes served continued to advance, although this increase did not quite match the decrease in rates.

The 68 page annual report of this company, now available, gives full details of the past

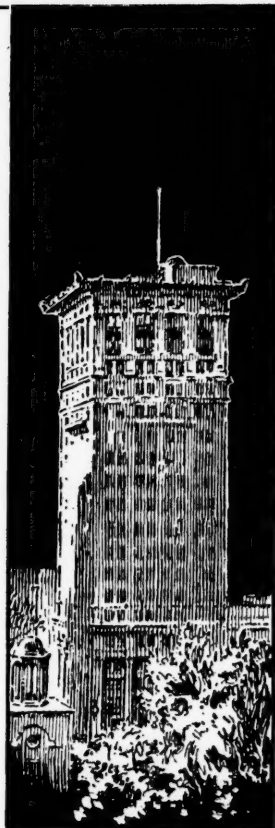
year's operations. Among the contents are comparative income statements and balance sheets for this company, for each of its subsidiaries and for the group; historical record of consolidated and individual earnings; analysis of earnings and expenses by departments; securities owned; and capitalization data.

Consolidated Gross Earnings.....	\$44,835,078
Consolidated Balance for Reserves and All Dividends	13,136,135
Net Income of Engineers (Top Company)	3,799,134
E. P. S. Preferred Stock Outstanding in Hands of Public (full dividends on each class of this preferred stock were paid during 1932)	430,012 shares

Inquiries may be addressed to C. W. KELLOGG, President

ENGINEERS PUBLIC SERVICE COMPANY

90 BROAD STREET • New York



John M. Miller, Jr., President

To Executives Who Are

"Statement-Minded"

There is an interesting situation in this bank: the liquidity which a banker or treasurer likes to see, coupled with policies which make it possible for us to advertise consistently—

"Money"

At all times

At fair rates

For deserving customers"

Let us mail you our latest statement. It will interest you.

FIRST AND MERCHANTS National Bank of Richmond

In 1928 THOMAS A. EDISON said of the Electric Industry:

"Development has only Well Begun"

TWO and a half million electric refrigerators, nine million radios, half a million ranges, to cite a small part of progress, have been installed in millions of homes since 1928. On more than a quarter of a million farms motors have replaced muscle, and the number of industrial customers has increased by 63,000.

**YET TODAY . . . 50% of wired homes do not use electricity for more than lighting and the flat-iron
89% of farms are without electric power
45% of industrial power is not furnished by electric utilities**

The statement—"Development has only well begun," is still true.

A Foundation for Future Growth

The Associated Gas & Electric System serves 805,000 residential electric customers who, dur-

ing the last two years, increased their use of electricity at a faster than average rate. The purchasing power of these customers is well up to the national average.

Yet of the total number served, only...

- 1 out of 6 owns an electric refrigerator
- 1 out of 2 owns an electric radio
- 1 out of 33 owns an electric range

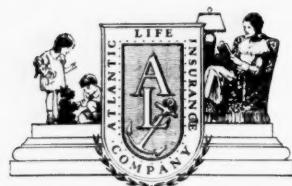
The installation of these three popular appliances increases four-fold the amount of electricity used.

Since 1929 more than 1,000 new power customers have been added by the Associated System. This increase forecasts greater industrial consumption than ever before as economic recovery progresses.

For information about facilities, service, rates, write

**ASSOCIATED GAS & ELECTRIC SYSTEM
61 BROADWAY, NEW YORK**





33rd Annual Statement

December 31, 1932

ATLANTIC LIFE INSURANCE COMPANY

ANGUS O. SWINK, President
RICHMOND : : VIRGINIA

ASSETS

CASH ON HAND AND IN BANKS AND TRUST COMPANIES	(1.45%)	\$354,903.41
BONDS:		
United States Government	(3.75%)	917,698.06
Municipal	(2.11%)	517,665.11
Industrial	(.57%)	138,858.41
Public Utility	(.72%)	177,124.23
Railroad	(1.30%)	317,954.31
Total Bonds (8.45%)		\$2,069,300.12
Not one of these bonds is in default as to principal or interest. All bonds are carried at amortized value.		
FARM LOANS	(1.90%)	464,624.52
CITY LOANS	(35.49%)	8,690,668.21
First mortgage loans have always been the primary asset of American life insurance companies; farms and homes are the greatest possession of our people and will continue to be such. Our average loan is \$3,648.98, and the average proportion of loans to appraisals is 34%.		
POLICY LOANS AND PREMIUM NOTES ..	(34.24%)	8,383,838.09
To those who have been compelled to borrow on their policies we would strongly urge that they repay their loans as soon as possible, thus restoring their contracts to par value. Every dollar paid off on a loan is a 6% investment for the policyholder.		
REAL ESTATE	(13.59%)	3,328,513.48
In our real estate account is the amount of \$400,000 as the value of our present home office building, and \$205,685 as the value of the property acquired as the future home of the Atlantic Life. We own no other large single properties, nor do we hold mortgage liens on such. The balance of \$2,722,828.48, averaging \$5,276.80 per property, had an appraisal value of \$6,164,333.73.		
PREMIUMS DUE AND DEFERRED	(2.54%)	621,209.01
INTEREST DUE AND ACCRUED, AND OTHER ASSETS	(2.34%)	571,975.20
TOTAL ASSETS		\$24,485,032.04

LIABILITIES

LEGAL RESERVE ON POLICIES	\$21,078,494.35
DEATH CLAIMS DUE AND UNPAID.....	None
CLAIMS REPORTED BUT PROOFS OF LOSS NOT RECEIVED	177,370.58
PRESENT VALUE OF DEATH, DISABILITY AND OTHER CLAIMS PAYABLE IN INSTALMENTS....	917,715.75
PREMIUMS AND INTEREST PAID IN ADVANCE....	249,521.39
RESERVES FOR TAXES PAYABLE IN 1933.....	50,650.00
MISCELLANEOUS LIABILITIES	81,497.81
POLICYHOLDERS' DIVIDEND FUNDS	468,653.08
RESERVE FOR BUILDING DEPRECIATION.....	199,582.47
An increase of \$50,021.21 over last year.	
CONTINGENCY RESERVE	75,000.00
An additional reserve for the protection of policyholders, above that required by law.	
CAPITAL	1,000,000.00
Fully paid-up capital stock is a further guarantee of the strength of Atlantic Life.	
SURPLUS	186,546.61
An increase of \$25,587.06 over last year, adding a still greater margin to the safety of policyholders' protection in Atlantic.	
TOTAL LIABILITIES	\$24,485,032.04

We have made an examination of the accounts and records entering into the Balance Sheet of the Atlantic Life Insurance Company of Richmond, Virginia, at December 31, 1932.

Cash on hand and on deposit was verified. Mortgage Loans, Loans to Policyholders, Collateral Loans and Bonds were verified by inspection of those on hand, and those in process of collection or on deposit were properly accounted for. Bonds are stated at their amortized values as provided by the laws of the Commonwealth of Virginia. The correctness of all other assets was established to our satisfaction.

The Net Reserve of \$21,078,494.35 was computed by the Actuary of the Company and certified by the Bureau of Banking and Insurance of the Commonwealth of Virginia. The other actuarial liabilities were computed by the Company's actuary.

We satisfied ourselves that proper provision has been made for all other liabilities.

In our opinion, the foregoing Balance Sheet has been prepared so as to correctly reflect the financial condition of the Company at December 31, 1932, according to its books and records.

A. M. PILLEN & CO.
Certified Public Accountants

LIQUIDITY plus DIVERSIFICATION equals STRENGTH

Safety of Life Insurance

Life insurance companies have been doing a remarkable work in these distressing times. As a whole they have not only maintained their position of safety as fiduciary institutions, but in a number of instances their business has grown. Extracts from some annual statements follow:

The John Hancock Mutual Life Insurance Co. carries this message to its policyholders and the public:

"The company's record here presented forms a part in the most noteworthy of the useful chapters in American life insurance history."

They add, speaking of life insurance as a whole, "there was distributed to the public during 1932 the unprecedented sum of approximately \$3,100,000,000 through performance of the contracts of the companies to policyholders and their beneficiaries." * * * "That such aid was made possible and could have been made possible only through the institution of life insurance as developed by the companies and their agency forces, is equally plain." * * * "Such an outpouring of money could have been sustained without damage only by an institution based upon adequate assumptions and conservatively carried on. These funds proceeded from contributions by policyholders from their savings. To that extent these millions of policyholders are partners in the greatest and most stable enterprises of the country."

The John Hancock Company increased its assets by \$18,177,000 during 1932.

Thomas A. Buckner, President of the New York Life Insurance Company, stated in his report that "1932 was one of the most noteworthy years in the company's history since its organization in 1845." The past twelve months was "our year of maximum service to policyholders. The total amount paid to policyholders and to beneficiaries was \$255,200,000, which exceeded the largest amount paid in any previous year by more than \$27,600,000."

A significant statement follows from Mr. Buckner:

"The company met on demand every contractual obligation from its current cash income without having to sell a single security and without having to borrow a dollar from any source." In addition to all this, new investments were made amounting to \$46,623,000, and the year was closed "with a larger amount of cash in bank than at any other year-end in the company's history."

This company's assets are \$1,974,000,000.

A Southern company, the Atlantic Life Insurance Company of Richmond, while referring to 1932 as "a year that will go down in history as one marking the abyss of the worst depression in recent memory" adds that "it is gratifying to note the splendid showing made by the life insurance companies of America."

As with other companies, the Atlantic Life completed the year 1932 in even a stronger position than at its commencement. Of total assets amounting to \$24,485,000, less than 2 per cent is in farm loans, which amount to a total of \$464,000. In spite of all the vicissitudes through which the financial and business world has been passing, the surplus of the Atlantic Life increased \$25,587 over the preceding year. The premium income has nearly doubled in ten years, the figures for 1932 being \$4,237,000, while insurance in force has grown from \$90,380,000 in 1922 to \$151,705,000 in 1932.

The Prudential Insurance Company in its statement shows that its income in 1932 was \$720,000,000, while payments to policyholders or their beneficiaries reached nearly \$480,000,000, which was an increase of \$90,000,000 over the preceding year. Of 367,000 claims, 301,000 were death claims. Forty-one per cent of this great company's assets are in government, municipal and other bonds, and there was a total of \$15,000,000,000 insurance in force on December 31.

These life insurance statements arrest the attention and command the thought of every one concerned in the stability of property rights and the safety of American business.

NEW YORK LIFE INSURANCE COMPANY

51 MADISON AVENUE, NEW YORK, N. Y.

A MUTUAL ORGANIZATION, FOUNDED IN 1845 INCORPORATED UNDER THE LAWS OF THE STATE OF NEW YORK

88TH ANNUAL STATEMENT, DECEMBER 31, 1932

BOARD OF DIRECTORS

DECEMBER 31, 1932

JOHN E. ANDRUS
Manufacturer, Arlington Chemical Company

NATHANIEL F. AYER
Treasurer, Cabot Manufacturing Company (Textiles)

CORNELIUS N. BLISS
Chairman of the Board, Bliss, Fabjan & Company

HENRY BRUÈRE
President, Boscary Savings Bank

MORTIMER N. BUCKNER
Chairman of the Board, New York Trust Company

THOMAS A. BUCKNER
President

NICHOLAS MURRAY BUTLER
President, Columbia University

CHARLES A. CANNON
President, Cannon Mills Company

***CALVIN COOLIDGE**
Former President of the United States

GEORGE B. CORTELYOU
President, Consolidated Gas Company

WILLIAM H. DANFORTH
Chairman of the Board, Ralston-Purina Co.

JAMES G. HARBORD
Chairman of the Board, Radio Corporation of America

CHARLES D. HILLES
N. Y. State Mar., Employers' Liability Assurance Corp.

HALE HOLDEN
Chairman of the Board, Southern Pacific Company

CHARLES EVANS HUGHES, Jr.
Hughes, Scherman & Dwight

ALBA B. JOHNSON
Retired

PERCY H. JOHNSTON
President, Chemical Bank & Trust Company

WILLARD V. KING
Retired

GERRISH H. MILLIKEN
Deering, Milliken & Company

FRANK PRESBREY
Chairman of the Board, Frank Presbrey Company

GEORGE M. REYNOLDS
Chairman of the Board, Continental Illinois Bank & Trust Company

J. BARSTOW SMULL
Vice-President, J. H. Winchester & Company

JESSE ISIDOR STRAUS
President, R. H. Macy & Company, Inc.

RIDLEY WATTS
Director, Chemical Bank & Trust Company

*Died January 5, 1933

Elected January 11, 1933, to fill vacancy caused by the death of Darwin P. Kingsley:

ROBERT E. DOWLING
President, City Investing Company

To the Policy-holders and the Public:—

During the year 1932 the New York Life Insurance Company paid to its living policy-holders and to the beneficiaries of those who died, the sum of **\$255,200,187.69**

It met every obligation from its current cash income, made new investments during the year amounting to **\$46,623,111.32**

and closed the year with a larger amount of cash in bank than at any other year-end in its history.

The assets of the Company amount to **\$1,974,076,041.43**

The total liabilities of the Company amount to **\$1,860,106,133.54**

included in which are policy reserves calculated upon the most conservative basis used by Life Insurance companies; a provisional apportionment of **\$52,059,288** for 1933 dividends to policy-holders, and a special reserve, not required by law, of **\$36,630,709.74**.

Its unassigned funds (surplus) over all liabilities amount to **\$113,969,907.89**

New paid for insurance effected during 1932 amounts to over **\$521,000,000**

At the close of 1932 the Company had outstanding insurance in force of over **\$7,300,000,000**

The total income of the Company during the year was **\$407,235,904.31**

The following table shows the assets of the Company under various headings and the percentage of each to the total:

Description of Investment	Asset Value	Per Cent to Total Assets
Cash on Hand or in Bank	\$27,697,604.76	1.40
United States Government Bonds	56,009,519.74	2.84
State, County and Municipal Bonds	129,486,343.11	6.56
Public Utility Bonds	147,550,734.61	7.47
Industrial Bonds	19,187,336.03	.97
Railroad Bonds	376,878,012.42	19.09
Canadian Bonds (Dominion, Province, City, etc.)	38,847,205.78	1.97
United Kingdom of Great Britain & Ireland Bonds	4,987,377.90	.25
Other Foreign Bonds	2,359,029.10	.12
Preferred and Guaranteed Stocks	80,883,896.00	4.10
Real Estate Owned (including Home Office) ..	48,146,598.73	2.44
First Mortgages on City Properties	529,478,296.81	26.82
First Mortgages on Farms	22,451,275.96	1.14
Policy Loans	419,798,911.98	21.27
Interest and Rents Due and Accrued	36,168,670.83	1.83
Other Assets	34,145,227.67	1.73
Total	\$1,974,076,041.43	100.00

(In this statement, bonds not subject to amortization and all Preferred and Guaranteed stocks are valued on basis prescribed by the National Convention of Insurance Commissioners.)

Thomas A. Buckner
President

Iron and Cement Output

(Continued from page 15)

the succeeding depressions. The net result, then, is that the two industries have been steadily approaching each other in tonnage outputs, a condition more noticeable—for the reason just stated—during sharp depressions than during booms. If we limit attention only to the past two decades we see immediately that just before the World War began the cement output was only half that of iron, and that the immediate war boom gave a still greater lead to the older industry. But with the first post-war collapse in 1921 the two outputs fell disproportionately, so that for a short time—a matter of a few months in 1921—the cement made was heavier in tonnage than the iron. The next boom promptly cancelled this rough equality, and at the height of our Ponzi-Capone prosperity we were again making at least three tons of iron for each two tons of cement. Again, however, the collapse of that boom worked more hardship on the iron trade than on the cement industry; and during 1931 the American cement output was somewhat heavier than our iron made, while in 1932 that condition was even more sharply accentuated. With practically complete data now available for the respective iron and cement outputs of 1932, it is sufficiently close to the truth to assume that the full year will show almost 50 per cent more cement than iron.

Most of us feel, I think, that the extreme low point in output of basic products has been reached this year, and that looking backward on the depression we will some day fix its worst point as having been in the early summer of 1932. If that be the case, 1933 will see slowly increasing outputs of both cement and iron. It will be of interest to see if the present tonnage leadership of the cement industry can be overcome by a re-growing iron industry; or if that cement leadership is to be a permanent feature of our industrial situation hereafter. My own feeling is that until and unless our public transportation problems are settled in unexpectedly favorable fashion, we will see more cement made and used annually than iron, in this country at least.

There are two possible ways for the American iron and steel industry—or at least some of its units—to reduce overhead costs. One is to push the manufacture, in a rather limited way as to tonnage, of high-grade and special products. That way out leads to ferro-alloys and special steels—and it has been recognized by most industrialists. But the other alternative, not so generally recognized, would be to follow the thirty-

year old lead of the Steel Corporation and take up cement manufacture from blast-furnace and open-hearth slags in a large way. If, as we have seen, the cement industry has been growing faster and more steadily than the iron industry, it does not seem logical for a hard-pressed iron industry to throw away the slag which would, properly used, give it a place in this more-rapidly growing industry. Every million tons of pig iron made implies that slag enough to make ten million barrels of cement has been made also—and either entirely wasted or else used in some far less profitable way than by turning it into Portland cement. The existing iron industry would be benefited by having a far broader base on which to spread its fixed charges; the existing cement industry would be improved by having its necessary future expansion provided from existing sources of known industrial experience and standing, rather than by entirely new promotions. And the products made would fit into industrial uses and markets in accessory rather than in competitive ways.

Working Out of the Depression

(Continued from page 14)

cent by the Tulsa Overall & Manufacturing Company, which has recently undergone its second major expansion since its inception in March, 1929.

Charles C. Leel of the San Antonio Chamber of Commerce, in referring to the Ed Friedrich Company, which established a small woodworking plant in that city 40 years ago, says it has become one of the largest freezer counter and meat cooler manufacturing concerns in the South shipping its products all over the United States. It recently completed a substantial addition, including a metal enameling plant.

A number of San Antonio's 35 needle industries are prospering, necessitating plant expansions.

In the past 16 years flour production steadily increased in Kansas City, Mo., more than 7,000,000 barrels being produced in 1932, writes E. P. Hamlin of the Industrial Department of the Chamber of Commerce. As the primary business of Kansas City is the receiving, handling and processing of foodstuffs, regardless of conditions, the city moves along at a comparatively level keel, for people must eat.

New Industries

New industries established in St. Louis in 1932 numbered 115, and 103 existing plans expanded their operations, which was a 62 per cent gain over 1931, says M. M. Drake of the Chamber of Com-

merce. The annual report of the Industrial Club of that city contained this significant statement:

"Development work has by no means ceased. The past year brought its full share of new ideas, new processes and new products to St. Louis. Photographic films, cellophane envelopes, mixed natural gas distribution, glass bricks and other glass products, mechanical devices, safety window sash, an aggregate from blast furnace slag and many others comprise the list of new industries."

New industries are continually being established throughout the Southwest and Southeast. In the upper South, for instance, the Baltimore Association of Commerce calls attention to the fact that 1933 got off to a fair start when seven new industries and three expansions were listed in the city during the month of January. Two of the larger projects were the Young Analine Works, Inc., which will give Baltimore a new line of manufacturing, and the Harry T. Campbell Sons' Company's new plant represents an important expansion for the manufacture of "Camelite," an asphaltic concrete mixture for roads and various other purposes. Business conditions in Baltimore during 1932 were fairly well maintained and in comparison with other cities its relative position was actually bettered in bank debits, department store sales, new automobile sales and building permits.

Store-Door Pick Up and Delivery of Freight

Collection and delivery of less-than-car-load freight at store-door will be started on March 15 by the Louisville & Nashville, the Gulf, Mobile & Northern, and the Nashville, Chattanooga and St. Louis railroads. It is reported that the Illinois Central has plans for this added service on its Southern lines.

In an interview, Mr. A. R. Smith, Vice-President of the Louisville & Nashville, in Charge of Traffic, explained that their plan involves the absorption by the road of all costs of the added service on traffic up to 230 miles haul. Traffic hauled over the 230 mile limit, including the pick-up and delivery service, will be partly absorbed, and the rate will progress until the entire cost of the service is included in the shippers' tariffs.

Mr. Smith advises that substantially all less-than-car-load freight from every station on the Louisville & Nashville Lines is included in the new store-door collection and delivery plan. Contracts have been made with local draymen at all of the more than 500 stations on the lines.

The railroad assumes the same liability for freight handled by the contract draymen as it would have were it to add its own trucking equipment.

Are you substituting increased seconds for PROPER ILLUMINATION?

Once you have installed Cooper Hewitt mercury-vapor light for any manufacturing operation—its actual money value in terms of increased production, reduced seconds and other important items is simply and easily determined. Just try, for a time, to get along without it—or even with less than what has been found adequate!

For example, we could mention a plant (name confidentially given on request) where 97 Cooper Hewitt lamps gave just the proper illumination necessary for weaving high-grade rayon crepe, etc. Ordinarily these lamps burn day and night though the plant is of monitor

daylight construction. But in a recent effort to economize, the lights were turned out in one section of the plant whenever daylight seemed adequate . . . And, *in this section, the percentage of seconds rose from their usual average of 4% to 7%!*

Again and again, in industrial plants all over the country, Cooper Hewitt mercury-vapor illumination has proved its actual dividend paying value. You cannot afford *not* to give Cooper Hewitt light at least a trial—say a 30-day period with a few lamps. General Electric Vapor Lamp Company, 819 Adams Street, Hoboken, N. J.

GENERAL  ELECTRIC
VAPOR LAMP COMPANY

549 Copr. 1933, General Electric Vapor Lamp Co.

COOPER
HEWITT
Industrial Illumination

BETTER THAN DAYLIGHT

Cooper Hewitt light eliminates dependence on window illumination and lets you utilize every square foot of your middle-floor areas at any hour of the twenty-four. It enables you to move from other buildings your best equipment, if need be, and centralize it in one. Thus, even with a six-hour day, you can give employment to two or three shifts, with the same equipment and a correspondingly lower overhead and maintenance cost. It does away with the uncertainties of weather or season.



STEEL CONSTRUCTION

STEEL BRIDGES
and BUILDINGS
TANKS, BARGES, PIPE
TRANSMISSION TOWERS
PLATE WORK

McCLINTIC-MARSHALL CORPORATION
Subsidiary of Bethlehem Steel Corporation

General Offices:  Bethlehem, Pa.

District Offices: New York, Boston, Philadelphia, Baltimore, Pittsburgh,
Buffalo, Cleveland, Cincinnati, Detroit, Chicago, St. Louis,
San Francisco, Los Angeles.

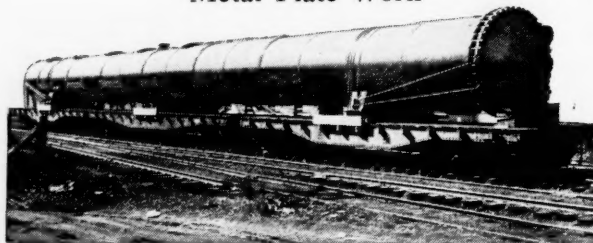
Export Distributor, Bethlehem Steel Export Corporation, New York City

McClintic-Marshall

♦ C O L E ♦

TANKS & VATS	BOILERS—HRT
for ACID STORAGE	and MANNING
NH ₃ STORAGE	JACKETED KETTLES
Aluminum	AGITATOR TANKS
Alloy Steels	BUBBLE TOWERS
Lead Lined	GAS SCRUBBERS
Monel Metal	WELDED STEEL PIPE
Tin Lined	CREOSOTING CYLINDERS

Lukens Nickel Clad Steel Plate
Metal Plate Work



Cole Creosoting Cylinder 8' diameter x 138' long.

♦ ♦ ♦

R. D. COLE MANUFACTURING CO.

Established 1854

NEWNAN, GA.

New York Office,
5 Beekman St.

ITEMS OF INTEREST

NELSON B. GASKILL, former Chairman of the Federal Trade Commission, proposes an amendment to the Federal Trade Commission Act to put into effect the Trade Practice Conference as a vital business agency. He proposes this as a method of regulation of competition, and says there are only two kinds of agreements that industry should not be permitted to make. These are agreements that are monopolistic and agreements that set up uniform selling prices instead of retaining competitive prices based on cost. The power should remain with the Commission to reject resolutions that are monopolistic or that fix uniform prices.

SENATOR MATTHEW M. NEELY OF WEST VIRGINIA has introduced a joint resolution providing for a barge canal from the Great Lakes to the Atlantic Ocean traversing the states of Ohio, West Virginia and Virginia. The resolution asks that \$50,000 be furnished the Federal Power Commission for the purpose of investigation, survey and report. Senator Neely points out that as early as 1872 the Virginia Legislature petitioned Congress to make a continuous navigable water line connecting the rivers of the Mississippi Valley with the Atlantic Ocean. As early as 1819 Virginia made a survey of the New River in West Virginia to determine the feasibility of connecting the James and the Kanawha Rivers.

THE MODEL LAND COMPANY, St. Augustine, Fla., continues its interesting advertising. Under present conditions men harassed with business details are expressing more and more a longing for out-door productive opportunity under an environment that includes health and freedom from burdensome details. This company, which has done so much for the development of Florida, says farming is a business worthy of the highest consideration, especially in the sunshine of a State where the growing season is practically throughout the year.

It is interesting to note in this connection that Florida, always optimistic and healthful, is, according to all reports, making marked progress on a firm foundation.

JAPAN was the principal foreign consumer of United States iron and steel products in January, taking a total of 24,662 tons, of which 22,614 tons were scrap.

Belgium was the chief source of iron and steel imports during January, sending in a total of 5508 tons.

CHAIRMAN JAMES M. MEAD, of the House Committee on Postoffices and Post Roads, states that there will be an estimated reduction of more than 5,000,000,000 pieces of first-class mail in the current fiscal year, and a revenue loss of about \$100,000,000 since the first-class postal rate was increased from two to three cents. He says, "the increase has proved one of the greatest blunders in the history of the postal service." He proposed to introduce an amendment in the extra session of Congress, providing for the restoration of the old two cent basic rate.

HARVEY S. FIRESTONE of Akron, Ohio, is on record that advertising and reducing production costs will conquer the depression. "In 1920," said Mr. Firestone, "I owed banks \$45,000,000. I placed full page newspaper advertisements in every city in the United States. Within two months I sold 18,000,000 tires and reduced my indebtedness to \$32,000,000. Next, I cut my expenses and readjusted the business. In less than four years I did not owe the banks anything."

MANUFACTURERS RECORD FOR

THE DAVIS-KELLY COAL REGULATION BILL has been held unconstitutional in a report to the Senate by a sub-committee of which the late Senator Walsh of Montana was a member. Senator Walsh told newspaper men the sub-committee's finding was based on a belief Congress did not have the power to regulate private industry. The measure provided for licensing coal producers and controlling their interstate shipments, at the same time setting up other regulatory machinery. Representative Kelly of Pennsylvania, the sponsor of the bill in the House, said he would reintroduce the measure at the next opening of the session.

THE UNIVERSITY OF MISSISSIPPI has made a survey of the general sales tax as applied in that State. Their conclusions are, briefly, that the revenue produced exceeds the estimates. The administration costs have been 3.8 per cent compared to the same for income tax and 5 per cent for ad valorem. It is not an unpopular tax. There is far more approval than disapproval. The spread is over a year and the smallness of the payments make an appeal. In the main merchants shift it, and furthermore, "by efficiency as a revenue producer and by its reaction on business in the State in an unprecedented depression, the tax has justified itself at least as an emergency measure."

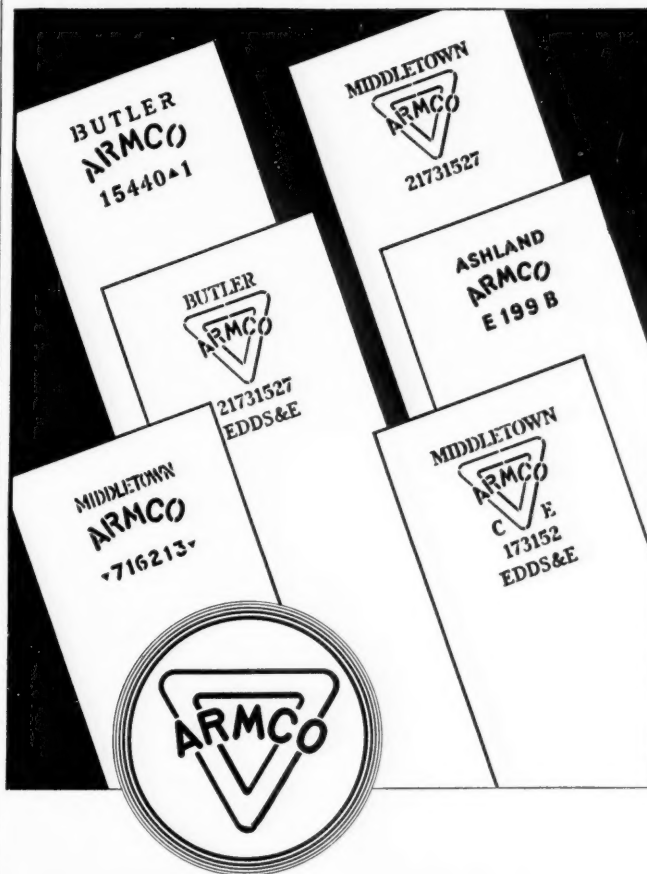
NASHVILLE, TENNESSEE, has a new 50,000 watt broadcasting station of the National Life and Accident Insurance Co., on which construction has begun in the spring of 1932. It takes rank with America's outstanding broadcasting units, and has the highest radio tower in the country, reaching a height of 878 feet. The tower weighs 150 tons; starts with a width of 2½ feet at the base and 370 feet above the ground, where the guy wires are fastened, the width is 38 feet. From this point it tapers to a width of 3 feet at the 758 foot level. From there on up is a telescoped steel pole carrying it 120 feet higher.

THE ASHEVILLE-CITIZEN, quoting the Christian Science Monitor, says the American public will need 23,000,000 new automobiles within the next five years. The calculation is figured with a view to replacements and conditions of cars now in operation. The situation is wholly abnormal and suggests "the greatest probability for buying of new cars in the history of the automobile industry."

QUOTING CHARLES M. SCHWAB on the place of research in industrial success, we learn that research in our steel mills has made possible the building of high quality forgings which, in turn, have been necessary for the modern cracking stills in the oil industry. Without these processes the present low cost of gasoline would not be available and there would be thousands fewer employed in the making and dispensing of this fuel.

We shall find in the next few years the value of the scientific training we have been giving the youth of America. The exploration of new fields not only for wealth creation, but for improvement of humanity's welfare will be demonstrated. Through the chemist and the engineer we will enter upon a new era of tremendous opportunity.

A \$5000 ALL-BRICK HOUSE with many unusual features will be an interesting exhibit of the housing division of the Century of Progress Exposition in Chicago this year. Floors, partitions, ceilings and stairways, as well as the roof, will be of brick, while walls, ceilings and floors will be machine-smoothed and polished and treated with transparent waterproofing to permit washing. Stairways, floors, roof and porches will be of reinforced masonry capable of supporting 300 pounds to the square inch. Common brick will be used.



"What's the difference?"

BUT there was a difference. Years ago, when the stamping industry was "in the woods," sheet metal was bought on hope. If it worked—fine; if it didn't—well, take the loss and make the best of it.

"What's the difference?" a discouraged buyer asked an Armc o Man, back in those days of chance.

But there was a difference; and Armc o went on to show it to the puzzled stamping industry. Instead of trying vainly to fit an all-purpose sheet to every job that came along, special, individualized sheets were created for every need. Different compositions of steel, different tempers and finishes—an endless variety of treatments were developed at Armc o to make the metal form into perfect pieces with little waste.

Isn't it logical that the men who made cold-rolled sheets what they are today could help you to more profitable results from the sheet steel you buy? They invite your problem—through our nearest office.

THE AMERICAN ROLLING MILL COMPANY

Executive Offices: Middletown, Ohio

DISTRICT OFFICES: Boston • Chicago • Cleveland
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THE CUTLER MAIL CHUTE

TO INSURE standard, dependable equipment installed promptly at moderate cost, the Cutler Mail Chute should be specified by name. If desired, approximate estimates will be furnished in advance.

If preferred, a stated sum may be allowed to cover this item.

Full information, details, specifications and estimates on request.

CUTLER MAILCHUTE CO.

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ROCHESTER, NEW YORK

STRUCTURAL *for* BUILDINGS STEEL and BRIDGES

Capacity 1000 Tons per Month. 3000 Tons in Stock

Carolina Steel and Iron Company

The Largest Steel Fabricators in the Carolinas

Greensboro

North Carolina

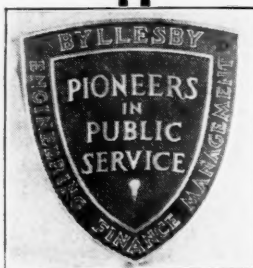
Sales Office: 709 Nissen Bldg., Winston-Salem, N. C.

Snead Architectural Iron Works

**STRUCTURAL STEEL
ORNAMENTAL IRON**

LOUISVILLE, KY.

BRONZE TABLETS



**Architectural
Bronze
for Banks,
Buildings and
Mausoleums**

J. S. HEATH CO., Waukegan, Ill.

TEXTILE NOTES

Cotton for Cellulose

The Cameron-Dockery proposal to grow cotton for its cellulose content was first reported by the MANUFACTURERS RECORD in December, 1930. It involved two stages of experimentation: first, the growing and harvesting of the entire cotton plant in a way similar to the usual method of handling grain and hay crops; and second, working out a method of isolation of the cellulose from the whole plant.

Speaking before a recent meeting of the Technical Association of the American Pulp and Paper Industry, Harold R. Murdock, director of research of the Champion Fibre Company and chairman of the Alkaline Pulping Committee of the Technical Association, outlined the results of his experiments in pulping whole cotton. While he disagrees with the Cameron-Dockery plan on economic grounds, his findings do not conflict with the basic idea of harvesting the cotton crop with grain harvesting machinery.

In order to carry out the experimental work, Mr. Murdock obtained from Professor Frank K. Cameron, of the University of North Carolina, several bales of the whole cotton plant and they were pulped by the various processes (soda, other alkaline, and sulphite methods) common to the industry. Also, separate pulping experiments were conducted on the stalks and the leaves. He found that the cellulose was no better than a first run linter cellulose which sells about the same and that in the pulping process the boll fibre which had been deteriorated, had shortened in length to less than a wood fibre length while the essentially non-cellulose portion of the plant was but partially dissolved. Further, he points out that in his experiment he was trying to do what the pulping mills try to avoid doing—to pulp a heterogeneous mixture of cellulose, lignin and bark.

He suggests that consideration should be given to separating by proper mechanical means the whole cotton plant after harvesting, into the bolls and stalk proper, in order to secure the more valuable spinnable boll fibre and the cottonseed which was lost in the pulping process. By such a method it is quite likely that the boll fibre can be obtained at a cost lower than the present picked staple and the seed turned into oil, meal and lint as is now done.

He believes that while there appears to be little encouragement to be able to isolate the cellulose in cotton stalks, at least with known methods, it is probable that a low cost long fibre cellulose of good quality can be obtained from cotton grown and harvested under the novel Cameron-Dockery proposal.

Fireproof Cotton Fabrics

Development of a new process for fireproofing cotton fabric has opened another potentially large market for cotton, according to the Fireproof Fabrics Sales Corporation, Philadelphia. This process is said to offer important economies to users of non-combustible fabrics for purposes now served by heavier and more expensive structural material.

In actual service under exacting out-of-door conditions, cotton canvas, treated by the new process, has proved its immunity from fire and its permanent retention of fireproof qualities. The process is applicable to all kinds of cotton fabrics, from the lightest cloth to the heaviest duck. Besides affording maximum fire resistance, it makes the fabric waterproof and provides protection from mildew, sunlight, and acid fumes. Since the use of cotton fabric for roofing purposes is rapidly increasing, the fireproofed material offers new possibilities in that direction as in other important outlets where such qualities are required.

Cotton, and the Dye Chemist

An article in the February issue of the Du Pont Magazine has been written by W. S. Calcott who is director of the Jackson Laboratory of the du Pont Dye Works. It gives a comprehensive idea of various phases of the diversified chemical manufacturing industry and explains the relation of such products as lacquered fabrics, Duco, pyroxylin plastics, military and sporting powder, rayon, Cellophane, etc., about which there has been popular misapprehension.

More Cotton Consumed

For the six months ending January 31, 2,811,486 bales of cotton were consumed in the mills of the United States as compared with 2,625,743 bales for the corresponding season of 1932. The cotton growing states consumed 2,351,060 bales, or more than 83 per cent of the total used in all American mills. The increase in the South was 196,019 bales as compared with a gain of only 1916 bales in the New England States and a decrease of 12,192 bales in the mills located in other states.

World consumption of all kinds of cotton during the first half of the current season, that is, from August through January, totaled approximately 12,067,000 bales, as against 11,600,000 bales in the first half of last season, and 10,979,000 bales two seasons ago, according to the New York Cotton Exchange Service. The world all-cotton consumption total for the past half season was the largest for any half-season period since the first half of 1929-30, when consumption was 12,984,000 bales.

Cotton Exports Gain

Total raw cotton exports from the United States for the first half of the cotton season aggregated 5,039,714 bales valued at \$196,343,806 compared with 4,956,981 bales and \$199,375,436 for the first half of the previous cotton season, a gain of 82,733 bales, but a loss of \$3,031,000 in value, reports the Department of Commerce. As compared with the first half of last season, larger exports were registered for France, Germany, Italy and the United Kingdom while smaller shipments were made to China and Japan of the important countries.

Southern Textile Exposition

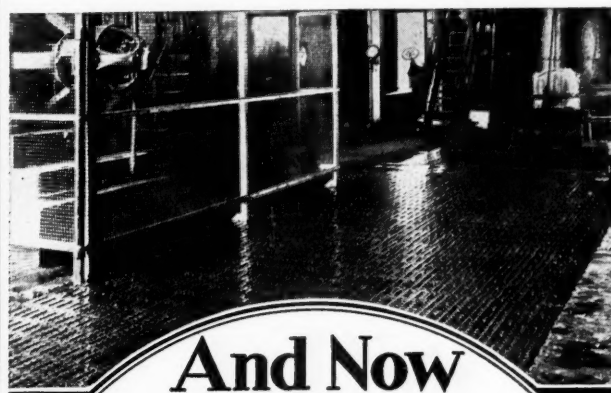
The Eleventh Southern Textile Exposition is to be held at Greenville, S. C., October 15-20, 1934, announces William G. Sirrine, president of the Textile Hall Corporation, Greenville.

Legislation Aimed to Increase Cotton Consumption

Several Southern Legislatures are being urged to pass bills requiring that all cotton be wrapped in cotton bagging instead of jute. Also, efforts are being made to pass legislation requiring various cotton products and feedstuffs, of 50 pounds or more, to be packed in cotton containers. The use of cotton fabric for highway construction, and for cotton uniforms for State college students are among the suggestions to increase cotton consumption.

Record Rayon Exports

Exports of rayon from the United States broke all records in 1932, while at the same time a sharp curtailment was experienced in the quantity of this product imported from foreign countries, according to figures issued by the Tubize Chatillon Corporation. The doubling of exports last year, accompanied by the drop in imports resulted in an export balance for rayon yarn for the first time in the history of the domestic industry.



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With the tank in service, all pumping is done between 6 p.m. and 7 a.m. By operating in this manner, the city reduced the cost of power alone from \$275 to \$105, a saving of \$170 per month.

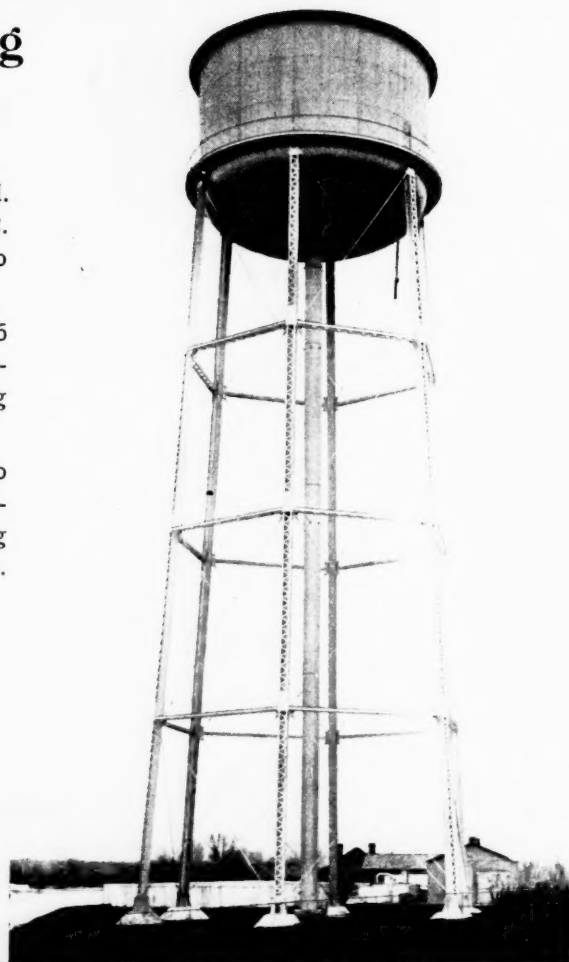
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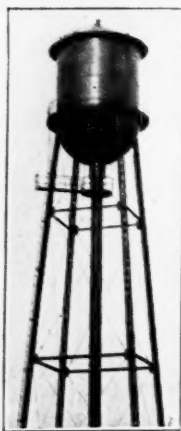
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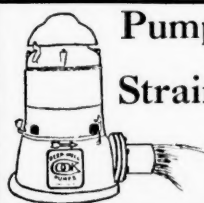
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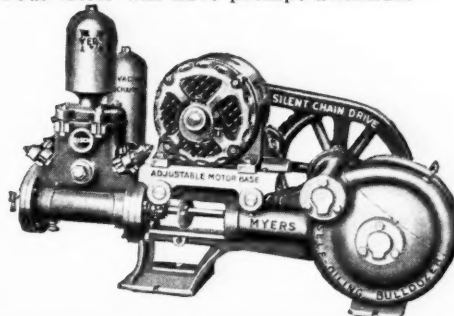
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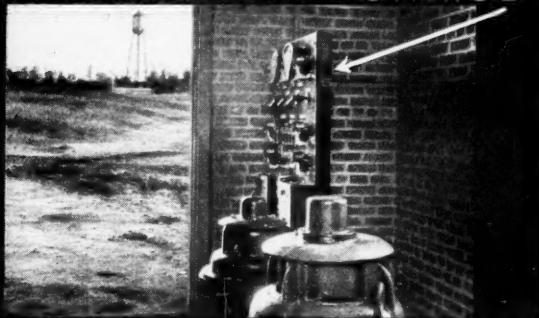
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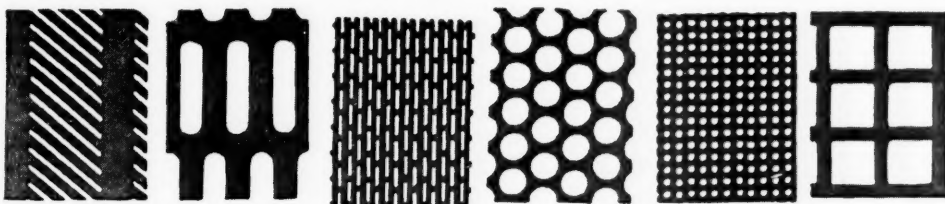
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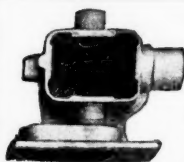
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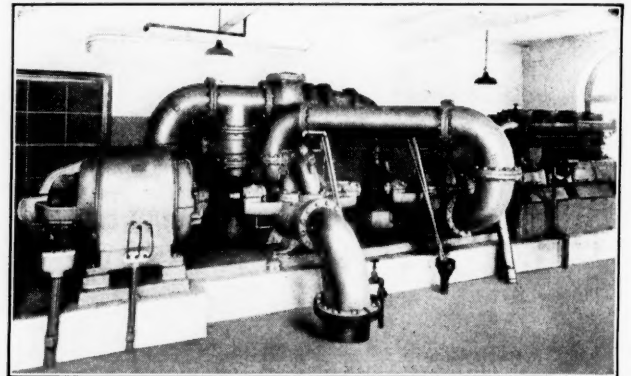
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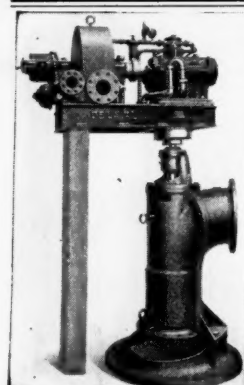
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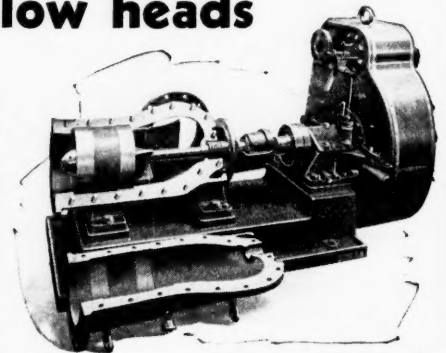
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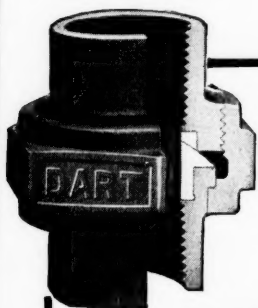
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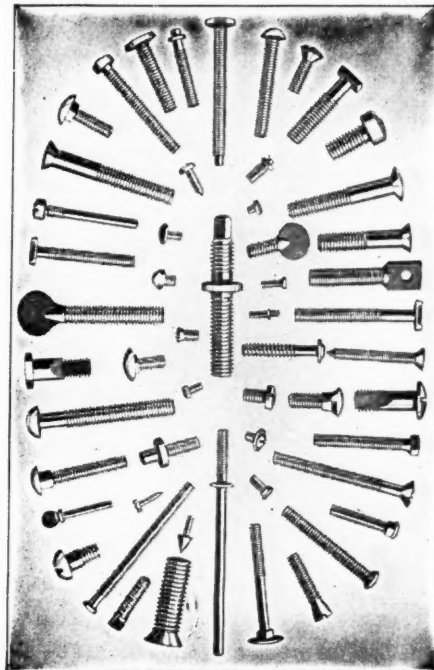
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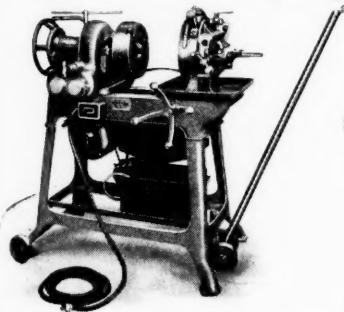
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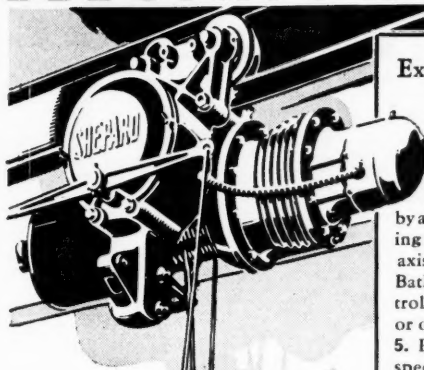
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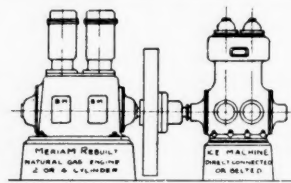
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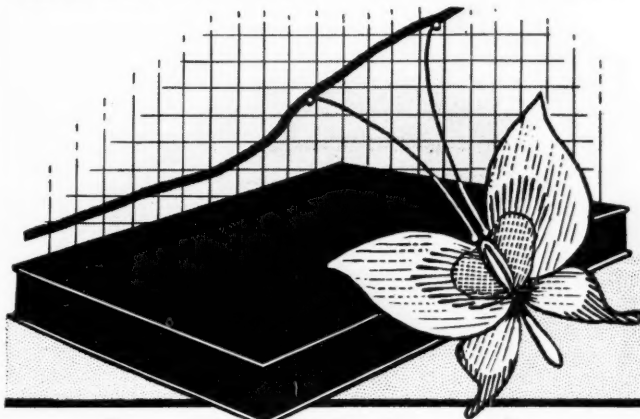
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Electric Power Output

Preliminary figures of the total production of electricity for public use in the United States in 1932 indicate an output of 82,938,000,000 kilowatt-hours, a decrease of nearly 10 per cent from 1931, reports the Geological Survey. The estimated electrical output of Southern public utility power plants in 1932 was 18,220,000,000 kilowatt-hours, a decline of about 8.5 per cent compared with 1931.

The production of electricity by the use of water power for the country in 1932, amounting to 34,027,000,000 kilowatt-hours, was about 11 per cent greater than in 1931 and was 41 per cent of the total annual production. In 1931 the output by water was 33 per cent of the total as portions of the country were still feeling the effects of the drought which began in 1929. Electrical output by fuel power was 48,911,000,000 kilowatt-hours, a decrease of 19 per cent.

In the South last year about 8,850,000,000 kilowatt-hours of electricity were produced by water power and 9,370,000,000 kilowatt-hours by fuel, an increase of about 8 per cent in hydro-electrical output and a decline of 20 per cent in electric energy produced by fuel power.

Efficiency in the use of fuels in generating electricity continued in 1932, even under unfavorable load conditions and decreasing costs of fuel. In 1932 the average consumption of coal and the coal equivalents of oil and gas in generating 1 kilowatt-hour of electricity was 1.50 pounds, or eight-tenths of an ounce less than in 1931.

By the Insurance Department. CONDENSED STATEMENT SHOWING THE CONDITION OF THE Fidelity & Guaranty Fire Corp. Baltimore, Md.

DECEMBER 31, 1932	
Bonds Amortized, Stocks Valued on Convention Plan.	
Total income during the year	\$3,254,304.90
Total disbursements during the year	3,477,461.26
Total admitted assets	4,787,920.56
Total liabilities except capital (including Contingency Reserve \$250,000.00)	\$3,077,644.03

Capital actually paid up in cash \$1,000,000.00	
Surplus over all liabilities	710,276.53
Surplus as to policy holders	1,710,276.53

Total liabilities	\$4,787,920.56
Amount at risk in United States December 31, 1932	683,693,746.00
Risks written in Maryland during 1932	43,294,140.00
Premiums on Maryland business in 1932	197,407.37
Losses paid in Maryland in 1932	56,211.57
Losses incurred in Maryland in 1932	57,639.57

STATE OF MARYLAND
Office of the
STATE INSURANCE DEPARTMENT
Baltimore, Md., March 1, 1933.
I Hereby Certify, That the above is a true abstract taken from the Annual Statement of the FIDELITY AND GUARANTY FIRE CORP., BALTIMORE, MD., for the year ending December 31, 1932, now on file in this Department.
WILLIAM C. WALSH,
Insurance Commissioner.

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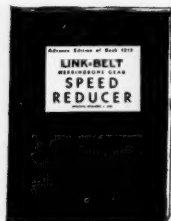
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